1975

Prediction of later development from preschool psychological tests of autistic and schizophrenic children

Patricia Matzelle Marx
University of Massachusetts Amherst

PREDICTION OF LATER DEVELOPMENT

FROM PRESCHOOL PSYCHOLOGICAL TESTS

OF AUTISTIC AND SCHIZOPHRENIC CHILDREN

A Thesis Presented

By

PATRICIA MATZELLE MARX

Submitted to the Graduate School of the
University of Massachusetts in partial
fulfillment of the requirements for the degree of

MASTER OF SCIENCE

September 1975

Department of Psychology

PREDICTION OF LATER DEVELOPMENT

FROM PRESCHOOL PSYCHOLOGICAL TESTS

OF AUTISTIC AND SCHIZOPHRENIC CHILDREN

A Thesis

By

PATRICIA MATZELLE MARX

Approved as to style and content by:

Thomas R. Holman
Thomas Holman, Chairperson

J. Gregory Olley
J. Gregory Olley, Member

Janet L Brown
Janet Brown, Member

Jerome L. Myers
Jerome Myers, Department Head
Psychology Department

September 1975

ACKNOWLEDGEMENTS

I would like to thank my committee members, Drs Thomas Holman, J. Gregory Olley, and Janet Brown, for their patience, careful attention to my work, and for the great professional knowledge and experience they shared with me during the course of this study.

Dr. Holman, my chairperson, agreed to take over the partially designed study when the sabbatical leave of my first chairperson interrupted my work. I am especially grateful to him for his willingness to take on the already fledgling project, and for his many contributions to its final form.

Special thanks are due to Dr. Brown, who arranged my having access to the data from the Putnam Children's Center files studied here, and who offered clear direction and warm support during the study.

The present Putnam Children's Center Staff very kindly consented to my use of data from their extremely valuable accumulation of case files; I am grateful for this privilege. I would also like to thank the many staff members through the years of the Center's history for the careful notes and outstanding therapeutic efforts which I was permitted to review for this study.

Lastly I would like to acknowledge the direction which Dr. Norman Watt gave to me in my first two years of graduate

work as I formulated this study, and thank him for the support and guidance which he gave me.

ABSTRACT

A review of historical and recent theories of the etiology of infantile autism is presented. A cognitive-developmental approach is especially described, and serves as the viewpoint of the study itself. The issue of value of diagnosis is raised, and a focus on cognitive skills emphasized. Subjects are 68 psychotic children whose case histories were drawn from the treatment files of the Putnam Children's Center in Boston. Thirty-three are diagnosed as autistic, 35 as childhood schizophrenic. The central hypothesis is that outcome will be better predicted by cognitive functioning tested by the Stanford-Binet in preschool years than by diagnosis arrived at during the same period. This hypothesis is tested for all 68 subjects against outcome in latency. A smaller number of these subjests were also used for tests of outcome in adolescence and adulthood. In fact both diagnosis and cognitive performance were found to be significant predictors of outcome, leading to a recommendation to use both evaluative procedures in making plans for children with these handicaps.

TABLE OF CONTENTS

LIST OF TABLES

INTRODUCTION

This study focuses on extreme behavior deviation of preschool children. The data are drawn from the case records of a pioneering center for the treatment of deviant preschoolers, the James Jackson Putnam Children's Center in Boston, Massachusetts. The children under consideration have been diagnosed as psychotic. Half fulfill criteria for the diagnosis of infantile autism; half are diagnosable as childhood schizophrenics.

A brief history of the identification of these two syndromes and their differentiation from others and from one another are offered. More detailed history of theories of autism are presented, since the differentiation to be made is often to decide whether or not to consider a child psychotic, and then whether to further identify him as suffering from infantile autism.

The premise of this study is that this diagnostic effort is misplaced in prognostication, and that in fact the child's level of cognitive development, regardless of general symptomatology, is a better indicator of outcome than is diagnosis which takes into account affective considerations or interpersonal relatedness. Studies are reviewed which focused on cognitive aspects of infantile autism, some of which contain outcome data.

The thesis tested in this study rests, then, upon a developmental conception of behavioral problems in the preschool years and emphasizes the skills possessed by the child and the incapacitating lack of skills. During the period when the data was being accumulated at the Putnam Center, the Stanford-Binet test was used as a standard stimulus for the assessment of these skills. Careful observation of the child's behavior in the testing situation augmented the rote scoring of the test.

REVIEW OF THE LITERATURE

Historical Overview

Severe behavioral disturbances specific to very early childhood have been recognized only within the past three generations. Earlier, children's problems were seen only as very early manifestations of adult syndromes. For example, "mental retardation" was seen as a defect which prevented those affected from being able to perform salaried labor, and was diagnosed in children only as educators attempted to differentiate those who could profitably learn a trade from those who could not. Childhood schizophrenia was first called "dementia praecoxissima," as though it were adult schizophrenia occurring exceptionally early in life (Kanner, 1973). In recent years these disorders of early childhood have been increasingly differentiated from one another. This differentiation has probably been both the result and the cause of a finer appreciation of the details of preschool development, which has enabled professionals to evaluate the behavior of children against ever-more-detailed norms and has produced a parental generation far more sensitive to the viscissitudes of infant development than has existed heretofore.

The identification of several psychoses of organic origin afflicting children, remarkable achievements in identifying preconditions which lead to various forms of mental retardation, and the recognition of severe disturbances without

yet identified organic determinants have been the fruits of this growth of understanding. In many cases, clear identification of a syndrome and its preconditions has led to programs which promise to free children from the scourge of handicap. For example, screening for phenylketonuria (PKU) is now routinely done in much of the country, and identified children, through special diets, are prevented from developing the intellectual handicaps which formerly were the common result of that syndrome. Early intervention in cases of deafness and blindness have helped children with these handicaps to reach a higher level of cognitive and social development than was possible in earlier times (Fraiberg, 1968, 1971; Fraiberg, Smith, & Edelson, 1969; Marx, 1974).

There are psychoses for which no physical cause has yet been found: infantile autism, symbiotic psychosis, and childhood schizophrenia (as described by Rimland, 1964). These may be genuinely functional psychoses, the result of genetic defect, or affective and cognitive handicaps. They may be entirely separate syndromes or varying degrees of the same syndrome. Indeed, they have been differentiated from the mass of other problems of preschool years chiefly by virtue of advances in identifying the etiological factors of the others. This is probably because cognitive, perceptual, and affective development in young children are so closely interdependent that extreme disruptions of one must cause difficulties of development in the others. Therefore, similar-

seeming lags in development may be caused by quite dissimilar precursors.

Infantile autism is an especially puzzling syndrome. The children appear bright and physically healthy. They often show isolated skills at least appropriate to their age level, sometimes beyond. Yet they fail to develop effective communication, are unrelated to their environment and especially to the adults in it, and seem unmotivated to perform many behaviors felt to be natural to young children. Since social, emotional, and intellectual development lags further and further behind, deterioriation of functioning is progressive, and the prognosis for recovery is very grave.

Four Perspectives on Infantile Autism

Autism, a psychopathological state in which appealing-looking young children seem to be bewitched into non-human creatures, has been of interest to adherents of almost every psychological system. The condition serves as a challenge to theories of human behavior, as the negative case which a theory should be able to reconcile with its constructs of normal behavior. Psychoanalysts, behaviorists, genetic and neurologic psychiatrists, and cognitive-developmental psychologists, as well as ethological biologists have all applied their understanding of the behavior of human beings to the problem of explaining autistic behavior. Each system emphasizes particular aspects of the totality of behavior.

The analysts. The psychoanalysts are concerned with energy flow and motivation, which is certainly a key problem for the autistic child, who does not seem attracted to other people, does not learn by imitation, and who spends much time in repetitive and often destructive behaviors. Dr. Bruno Bettleheim has spent his professional life working with very disturbed young children and has contributed importantly to research on autism. He has been caricatured as one who blames the parents for the fact that autistic children seem to have withdrawn their libidinal investment from the world and focused it on themselves. In treatment he tries to provide a gratifying environment which revives hope in the child that the world outside himself is worthy of exploration. However, Dr. Bettleheim's approach does not deserve the simple-minded construction attributed to him by his detractors. In The Empty Fortress, for example, he attempts to make use of cognitive and developmental theory and to relate how the mind works (cognitive development) with why it learns the things it does when it does (motivation). Another psychoanalyst, Selma Fraiberg, has addressed herself to the same problem of inter-relationship by studying blind children's development and identifying the conditions of early development which help the blind child to avoid becoming autistic (which is a serious hazard for the blind-from-birth child).

Behaviorism. This psychological school of thought sets aside the issue of internal motivation, to focus on what is

done. Ivar Lovaas (1966) has devoted himself to the treatment of autistic children and has demonstrated that they can be taught to perform activities formerly shunned, if the environmental contingencies are properly manipulated. He has even succeeded in supporting the use of word-sounds in children who have not developed language. Unfortunately, motivation is not so easily banished from the system; behaviorally-oriented therapists have not yet taught autistic children to link words together in new, complex, self-motivated sequences, making the behavior functionally useful in a less well-controlled environment. At the Lynnwood School in Maryland, behavioral analysis of interactions coupled with a developmental and somewhat psychodynamic orientation has enabled an intuitively skillful therapist to explain and generalize her mode of treatment (Simmons, 1974). Jean Simmons, the therapist, and Dr. Charles Ferster, the behavioral psychologist, enjoyed a fruitful period of collaboration while they were working out this translation of developmentally into behaviorally-based procedures (Ferster & Simmons, 1966). The collaboration ended, however, when the behaviorist attempted to extend his model by the use of teaching machines and other environmental changes which seemed to the developmentalist in conflict with her overall system of treatment (Simmons, 1969).

The biological approach. This approach to autism is best represented by Bernard Rimland, author of Infantile Autism. In this monograph he reviews in a most comprehensive way the

literature in the field to date of publication (1964). He offers a hypothesis which links autism and childhood schizophrenia as defects of different parts of the central nervous system. Rimland's work, brilliant as it is in surveying the field and producing a creative and plausible hypothesis, has resulted in only one treatment proposal, the use of megavitamins, which has not yet produced the desired reduction in symptomatology.

The developmental approach. Child development has contributed to the psycho-education of autistic children. Progress in understanding and guiding the development of young normal children has been made as finer understanding of the developmental processes has been obtained by the careful study of normal children. Knowing just what children are capable of at given stages of development enables educators to design curricula which promote growth without posing frustratingly insoluble problems for the child. Recognizing that children understand the world differently from adults enables parents of normal children (especially if they have read Fraiberg's The Magic Years) to deal sympathetically with the strange fantasies and misconceptions of young children.

Understanding the cognitive processes of very disturbed children may similarly lead to better handling of these children. The intuitive sensitivity of those who work with the autistic, for example, leads them to avoid streams of verbiage which seem like an attack upon these youngsters. Metaphors--

The Seige (Park, 1972) and The Empty Fortress (Bettleheim, 1967)--communicate the feelings of sensitive people trying to penetrate this seeming shell. While much has been written about the autistic child, few empirical studies have dealt with how he thinks and attempted to relate this to how he behaves and how he develops or fails to develop.

Recent Cognitively Oriented Studies of the Autistic

A few empirical studies have had as variables the level of verbal development, various performances of manipulative and gross physical skills, and diagnostic category. Often the number of subjects is quite low, the range of ages is quite broad, and the diagnostic criteria are poorly defined. In a search of the outstanding journal of this field, Journal of Autism and Childhood Schizophrenia, the following studies were found which seemed relevant to the approach to childhood psychosis being discussed in this study.

Treffert, McAndrew, and Dreifuerst (1973) reported on the outcomes of 57 psychotic children treated in an in-patient program over 11 years. Associated with positive outcome they found: late onset of the problem, the development of speech, and completion of bowel and bladder training at the time of admission. It is not clear if "speech" means communicative speech or merely recognizable vocalizations. The autistic children (criteria for diagnosis not made clear) tended to remain chronically hospitalized when compared with cases of

later onset.

DeMeyer, Barton, and Norton (1972) evaluated the intellectual, verbal, motor, perceptual-motor, and perceptual task performance levels of preschool psychotic children and a matched group of mentally sub-normal children. They found that the retarded children were more advanced than the schizophrenic children in only two motor tasks, but better than the "primary autistics" in all except the Seguin formboard and stair climbing. No comparative outcome data were provided.

In another study, DeMeyer, Barton, DeMeyer, Norton, Allen, and Steele (1973) reported that the best predictor of functional capacity in a work-school setting of autistic children was the child's overall prognosis at intake. Performance I.Q. and the overall severity of illness were the next best indicators. They contrast their findings with those of Rutter (1967) and concluded that speech and overall I.Q. were the best predictors of outcome.

In an ingeniously-designed study, Hermelin (1972) studied blind, autistic, deaf, and normal children (half of the normal children were blindfolded) to determine whether normal and variously-handicapped children used different modalities to locate events in space and time. Her conclusion is worth quoting, since the language she uses helps to make clear the differences of cognitive conceptualization from earlier generalizations about mutism, withdrawal, etc.:

What is relevant in this context is not so much a verbal incapacity [on the part of autistics] as a discinclination to use words as "tokens" spontaneously in a coding operation . . . . The main point made in this paper is that it is an oversimplification to assume an overall abnormal structure of sensory channels, which, for instance, leads to a dominance of touch over vision. As shown [by these findings] when visual information is codable for autistic children, they use visually-presented verbal stimuli like deaf children, presumably because, like the deaf, they do not spontaneously translate and rehearse the items in a verbal form (p. 297).

Three Viewpoints of Diagnosis

Leo Kanner (1943), in his original paper identifying infantile autism, offered as one of the criteria for the diagnosis that they "do not have language which conveys meaning to others." He ventured to distinguish infantile autism from the already identified childhood schizophrenia as a distinct syndrome rather than a subtype, on the basis of the parents' reports that their children had always been detached, remote, and uncommunicative with other human beings, whereas childhood schizophrenia had been seen as a regressive disorder which followed a period of "normal" growth. Kanner's (1949) criteria for diagnosing autism are:

1. Profound withdrawal of contact from people
2. Obsessive desire for the preservation of sameness
3. Skillful relation to objects
4. Retention of intelligent and pensive physiognomy
5. Mutism or the kind of language that does not seem intended to serve the purpose of interpersonal communication

In their report on research being conducted at the Putnam Children's Center, Brown and Kaplan (1974) use these criteria to construct a codifiable system of diagnosis. For each of the five criteria, a given child can be given a score of +3 if the criterion is highly characteristic of the child, +1 if it is somewhat characteristic, or -2 if the criterion is not characteristic. Each child being evaluated can receive a total Kanner Autism Score ranging from -10 (not autistic) to +15 (highly autistic).

Rimland (1964) offered the hypothesis that both infantile autism and childhood schizophrenia are disorders of the ascending reticular formation. In autism the reticular formation is supposed to be resistant to conducting impulses, resulting in sensory deprivation, while in schizophrenia the system is thought to be too responsive, resulting in flooding of the sensorium. He predicted, as a consequence, that au-

tistic thought will be characterized by obsessive integration, while schizophrenic thought will be seen as dissociated. Rimland included in his understanding of the meaning of childhood schizophrenia that it becomes manifest later in childhood than does autism, after a period of apparently normal growth, and that it is usually accompanied by visual or auditory hallucinations in later childhood. His diagnostic tool is an 80-item behavioral checklist, Form E-2 (1964, pp. 219-236). Brown and Kaplan (1974) used Form E-2 to diagnose cases of childhood schizophrenia.

The James Jackson Putnam Children's Center, which was founded in 1943 in Boston, Massachusetts, has specialized since that time in the study and treatment of infants and preschoolers, focusing on both normal psychological development and on the various psychological problems which may be manifested in the early years. As contemporaries of Leo Kanner, the directors--Dr. Marian Putnam and Mrs. Beata Rank--were interested in his work with children whom he identified as having infantile autism. Developing the primary diagnostic center for very young emotionally-disturbed children in the Metropolitan Boston area, they saw most of the children within a large radius of the city who manifested the symptoms described by Dr. Kanner. They also saw many children with detectable brain damage (whom they referred elsewhere for care), cases of childhood schizophrenia of very early onset (thought by Loretta Bender and others to be suffering from

subtle brain damage), cases as described by Margaret Mahler (1952) with a primitive symbiotic tie to mother, and children with diverse other behavioral difficulties--fire setting, cruelty to animals, stuttering, irrational fears, etc.

Rank and Putnam's system focused on the adequacy of the child's ego integration. They paralleled the development of Anna Freud's concept of developmental lines in their own independently constructed theoretical formulations. Applying this system, they identified children who might be diagnosed by others as either autistic, symbiotic, or schizophrenic to be suffering from different degrees of atypical development of ego functions, characterized by fragmentation of the ego. All children so identified were referred to at the Center by the short-hand label "atypicals," or even colloquially, "Atyps." All such cases, whether seen further in treatment or seen only for diagnosis, were considered study cases and were followed carefully by the Center staff through phone and letter contacts, periodic follow-up evaluations, reports from schools and other institutions, unless the parents of the child were absolutely unwilling to cooperate.

These three diagnostic systems, Kanner's identifying autism, Rimland's identifying childhood schizophrenia, and Rank and Putnam's which blurs distinctions between these two categories while focusing on specific ego-functions or skills and the dispersal of developmental levels within the given child subject will be used in the experimental procedures of

this study.

Rationale of This Study

The history just reviewed shows a progression of thought about developmental disturbances in very young children. The first approximation applied to labels from adult deviance translated into those for childhood. During this period, *dementia praecoxissima* was the diagnosis given very disturbed young children. Dementia was the problem, whether occurring in childhood, late adolescence, after the birth of a child, or in old age. Later, the fact of early onset was recognized as also a problem in that early onset of a handicap interferes with development as well as with day-to-day functioning. Kanner's (1949) position was that, because it is a schizophrenia with such insidiously early onset, autism is a syndrome which is distinguishable from other schizophrenias. More recently, researchers have been interested in differentiating childhood schizophrenia from autism on the basis of the differences in cognitive functioning manifested by these children. Rimland (1964) has done this because of his hypotheses about etiology. Bettleheim (1967) has done so as a contribution to the attempted integration of ego-psychology and Piaget-inspired developmental studies of cognition.

The present study also focuses on differences in cognitive functioning, but for other reasons. The important questions to this researcher are:

1. What are the skills the child presently has upon which to build a behavioral repertoire with which he can deal with the world?
2. What can be done to augment these skills so that his handicap will be minimized?
3. What will be the outcomes with and without interventions?

In this study the classifications "childhood schizophrenia" and "infantile autism" will be used. A hypothesis to be tested will be: given that all the children under consideration are deviant in the way usually considered psychotic, they can be meaningfullly differentiated from one another on the basis of cognitive performance as measured by traditionally-accepted intelligence tests. Furthermore, this mode of differentiation will also be a useful prognostic indicator. Rank and Putnam's focus on "ego-functions" is partially retained in this study with its emphasis on cognitive performance, and their blurring of diagnostic lines (for which they were chided by Dr. Kanner as introducing a meaningless waste-basket category of "atypical") is endorsed. "Ego-functions" in this study are somewhat narrower than those considered by Rank and Putnam, being limited to purely cognitive skills rather than the whole system of intellectual and ego-defensive abilities.

METHOD

Subjects

Data on subjects were drawn from the study of children with atypical development at the James Jackson Putnam Children's Center. From 1943 to 1968, 350 cases were diagnosed and most have been successfully followed up. The mass of material pertaining to these cases is in its clinical form: reports of diagnostic evaluation sessions, process notes of social-work and psychiatric sessions, descriptions of the child's behavior in the therapeutic nursery, follow-up phone calls, etc. Dr. Janet Brown has been supervising the codification of these files into processable data on over 450 variables. Two hundred cases have so far been coded and follow-up to the present time. This pool of coded cases serves as the source from which the subjects for the present study were drawn.

The information within the files permitted Brown's team to evaluate the children on the basis of commonly-agreed-upon criteria for diagnosis. Rimland's (1964) Form E-2 (see Appendix) was rated for each child by the raters, using the file as the source of information. Reliability checks were made by having two raters go through the same file independently. The raters were found to differ little or not at all in their independent ratings. (No exact reliability figures are given.)

In some instances, E-2 was also rated for the child by his own parents. Six children whose E-2's were rated by their parents (in the total sample described by Brown and Kaplan) scored above Rimland's cutoff for early infantile autism, although only one of the total sample which was rater-rated received this high a score. It would seem, then, that the parents' rating was different and that raters (using the information available to them) underestimated the severity of the condition. Since this study depends upon the rater-rated E-2's, some children with severe childhood schizophrenia who might have been included in the sample if parent-rated E-2's were available may have been omitted from the study. Those who are included probably are those with the most severe diagnoses, reflecting the bias of the rater-rated protocols toward lessening the recognized level of diagnosis.

Children were given a code on the basis of the Rimland E-2 of from one (low or no indices of schizophrenia) to nine (highest index of schizophrenia). Children with coded scores of seven, eight, and nine were considered potential subjects for this study, and their case numbers were noted.

It was also possible to rate the children in the pool on their level of autism, according to Kanner's (1949) criteria for early infantile autism. This rating was summarized by a total Early Infantile Autism score ranging from a code of one (low autism) to nine (high autism). Children scoring seven,

eight, and nine on the Autism Scale were selected as potential subjects for this study, and their case numbers noted. This criterion cut-off guaranteed that each chosen as autistic must have positive indications on all five of Kanner's criteria for autism.

Since Rimland's criteria were used to select the schizophrenic subjects, and Kanner's to select the autistic subjects, it was possible for children to score within the criteria on both high schizophrenia and high autism. In fact some children did turn up in both subject groups. These children were excluded as subjects.

The protocols for all remaining potential subjects were then scanned to ascertain whether there was evidence of brain damage or sensory impairment. Almost all the children in the sample had been assessed neurologically by Mary Louise Scholl, M.D. at Massachusetts General Hospital. Dr. Scholl has specialized in the neurological assessment of very young children and conducted research in this field for many years. Besides the usual scanning of the nervous system, checking the reflexes and the responses dependent on each major nerve pathway, she also conducted behavioral examinations which overlapped with the psychological examinations conducted at the Putnam Center. Waking and often sleeping E.E.G.'s were given to many of the children. Notation was made in each child's chart of any positive hard signs of neurological impairment, soft signs (that is, responses suggestive of im-

pairment but not conclusively so, or not consistently elicited), or of sensory impairments detected. Children with any of these complicating factors were excluded from the subject pool.

The coded protocols contained evidence of the extent to which formal psychological testing had been done. If this evidence showed that nothing could be concluded concerning the child's intellectual development, the child was also excluded from the subject group. When all of these exclusions had been made, there remained 35 "schizophrenic" children and 33 "autistic" children to serve as subjects for this research.

Measures

All of the children included in the sample had been evaluated by a psychologist before the age of five. In almost every case the psychologist was Mrs. Grace Young, a member of the American Board of Examiners of Professional Psychologists, who was associated with the Center from its beginning until her retirement in the early 1970's. Mrs. Young used the Stanford Binet as a testing instrument and also as a standardized experience against which she could compare the behaviors of the many young disturbed children which he examined during her career.

> . . . the difficulty experienced by the Chief Psychologist, Mrs. Grace Young, in obtaining valid

> measures of intellectual functioning on the Stanford Binet because of the inability of the children to cooperate, led to the use of the psychological examination as a vehicle for qualitative observation rather than quantitative assessment (Brown & Kaplan, 1974, p. 6).

This qualitative use of the Binet over many years, by the same examiner, under the very same experimental conditions, and with the shrewd observations and careful reporting which Mrs. Young made, have resulted in a mass of quantifiable data, which are the source of the particular data to be examined in this study. A sample report of one of Mrs. Young's evaluations is appended. Although this is a demonstration evaluation of a child who was not a patient at the Center, it was conducted in the same manner as were the study evaluations, in the same room, and with a child of appropriate age. Of note is the wealth of information under "Impressions," which conveys vivid images of the child and his response to the testing situation. Also, note that under "Findings" a potentially scoreable protocol for the Stanford Binet is included. And under "Summary" the observations and findings have been integrated into a qualitative understanding of the child's cognitive function as it has been affected by his emotional reactions. The psychological evaluations of the children in the study, central to which is a Stanford

Binet test for each child, will constitute one set of measures in this study.

All of the children in the sample have been followed by the Center staff at least until the age of ten, and many beyond. For all subjects, information is available which permits an evaluation of their functioning in the real world. Page 57 of the appended Etiology and Prognosis in Childhood Psychosis Rating Scale shows the 11 categories of outcome which the Putnam Center raters used to code the information available to them. This information is arranged in a continuum from good outcome to very poor outcome, with intellectual, social, and intrapsychic behaviors considered simultaneously in assigning a child to a given category. One aspect of this system of categorization which makes its use inappropriate in the present study is that it separates qualitative categories (for example eruptive and passive) into different levels within the continuum as though they could be ordered. For example, passive retarded mild (category five) is numerically weighted as more favorable than eruptive retarded mild (six) if the categories are considered ordered. Since this researcher is not prepared to defend the differences in level between these two qualitative categories, the categories for this study will be collapsed as shown in Table One. These

---

Insert Table One about here

Table 1

Outcome Categories for This Study,
as Derived from Categories Used by Brown and Kaplan

Brown and Kaplan Categories	Categories for This Study
1. Normal-neurotic	1. Functioning at age level
2. Brittle-schizoid	
3. Eruptive-schizoid	2. Dull to normal
4. Schizophrenic	
5. Passive-retarded, mild	3. Mildly retarded
6. Eruptive-retarded, mild	
7. Passive-retarded, moderate	4. Moderately retarded
8. Eruptive-retarded, moderate	
9. Passive-retarded, severe	5. Severely retarded
10. Eruptive-retarded, severe	
11. Regressed-arrested	6. Profoundly retarded

Brown and Kaplan, 1974, p. 17

data will constitute the second set of measures for this study.

Summary of measures. The independent variables were diagnosis (autistic or schizophrenic) and cognitive skill level. The levels of these were determined by information from the Center files, using Rimland's Form E-2 and Kanner's five criteria. Those with the highest levels of childhood schizophrenia as measured by Form E-2, and the highest levels of autism as determined by Kanner's criteria were chosen as subjects.

Cognitive skill was determined by rating the protocols of tests on the subjects at five years of age or earlier, using the Stanford Binet. Ten categories of cognitive skill were used, so that a total cognitive skill score ranges from a potential of zero to ten.

Outcome at three different age levels served as the dependent variables. These data were drawn from the Center files and coded (for this study) from an outcome of one (functioning at age level) to six (profoundly retarded).

Checks on rater reliability were made by having two raters rate the same file independently, but exact procedures and outcome for this reliability check are not available.

Procedure

Although the children under study were not testable in the conventional sense, and therefore numerical data on their

performance on the Stanford Binet cannot be assembled for each child on each item on the test, the rich descriptive material in the psychological evaluations can be used to make a qualitative evaluation of each child's functioning in a number of cognitive skill areas tapped by the test. The system used by Brown (Etiology and Pronosis in Childhood Psychosis Rating Scale, p. 45) used to codify the child's ability to demonstrate his competence in nine cognitive areas, as tested by the Stanford Binet:

1. Fine motor skill alone.
2. Simple perception.
3. Rote memory, perceptual.
4. Perceptual analysis and synthesis.
5. Perceptual reasoning and expressive language.
6. Receptive language and perception.
7. Expressive language and perception.
8. Rote memory, verbal.
9. Receptive and expressive language, reasoning.

This system of schematizing the cognitive areas tapped by the Binet was developed by Brown, and depends on face validity.

Each child's protocol was examined to determine whether there is demonstration of competence on any one of the subtests for the skill being evaluated. For example, a protocol which shows ability to do bead-stringing to the criterion re-

quired to pass the item on the Binet was scored Plus (+) for 1. Fine motor skill alone. A child who showed no performance to criterion required to pass on any subtest was scored Minus (-). For example, a child who did not do either the form board, Seguin, mare and foal, animal pictures, or discrimination of forms was scored Minus on 2. Simple perception. Exception would be made for the child who demonstrated competence on advanced tests (i.e., perceptual analysis and synthesis, receptive language and perception) and who was not tested at the two or three year level merely because these tests were clearly beneath his functioning level. Such a child would be given a Plus for competencies which can only be tested by the Binet at a low level, when they demonstrate competencies at a higher level which are a synthesis of several simpler competencies. In actual practice, this exception affects only the scoring of competencies One and Two, which are tested by very simple tasks, omitted for the very bright and/or older preschooler.

Treatment of the Data

The hypothesis to be tested is that performance on the Stanford Binet is more predictive of outcome in later childhood and adulthood than is diagnostic category predictive of outcome.

Independent variables. 1) Diagnosis constitutes one independent variable. High Rimland Schizophrenic subjects

compose one group, and High Kanner Autistic subjects compose the other group.

2) Cognitive skills is the second independent variable. The same subjects for whom diagnosis is used for categorization in the first test are re-categorized by their performance on the Stanford Binet for the second test into High and Low Cognitive Skill Groups.

Dependent variable. Each of the independent variables is used separately in a test of the dependent variable, outcome. Outcome measures are available for all of the children in the sample at latency (ages six to eleven), many at adolescence (ages 12-19), and some in adulthood (20 and beyond). Separate analyses are made comparing outcome for children as predicted by diagnosis and cognitive skill at each of these age levels.

RESULTS

Definition of "Good" and "Poor" Cognitive Performance Groups

In order to establish a basis for assigning subjects to sample groups on the basis of cognitive performance, the total pool of subjects was treated as one group. The distribution of all subjects' cognitive scores is established. Table Two shows the distribution of scores for the latency age

---

Insert Table Two about here

---

group. The median is calculated to be 2.7. In keeping with accepted practice (Seigel, 1956) all scores below the median were counted in one group, and all scores above the median in the other. Therefore, Cognitive Scores of 0, 1, and 2 are counted as "Poor" scores, and those of 3 through 9 as "Good." The median cognitive score was calculated for the adolescent group, using the same data on cognitive performance as was used in calculating the latency figure. The re-calculation was done to develop a true median cognitive score for only those subjects for whom adolescent outcome data were available. This median was also 2.7, and so the same categories for cognitive groups were used. However, the adult outcome data were available on a smaller group, and losses were so distributed that the median for this group on cognitive skills was quite different: 4.13. For the adult outcome

Table 2

Distribution of Scores on Preschool Cognitive Performance

Score	Frequency
0	9
1	7
2	13
3	7
4	4
5	7
6	5
7	2
8	4
9	10
	Total = 68
	Median = 2.7

test only, the Good Cognitive Performance Group is composed of those having cognitive scores of 5 through 9, and the Poor Cognitive Performance Group is composed of those with scores from 0 to 4.

Examination of the categories of tasks upon which these scores are based reveals that a child must perform some verbal operations beyond rote repetition in order to achieve a place in the Good Cognitive Performance Group. Those children who are in the Poor Cognitive Performance group either showed no testable competence at all (score of zero) or performed only the simple perceptual or simple motor tasks. Typically, this would mean solving the Seguin form board or managing to string a few beads on a shoelace. The children who are in the "Good" group solved problems requiring expressive language, complex reasoning, good memory, and complex perception and analysis. Among this sample were some exceptionally bright children who performed in their preschool years tasks which are considered difficult for elementary school children.

Definition of "Good" and "Poor" Outcome Groups

The median outcome for the total sample pool at each of three age levels (latency, adolescence, and adulthood) was calculated. In each case, half the subjects fell in category one, "normal" functioning. Half fell in the remaining categories of less than normal functioning. Good outcome subjects,

then, are those whose outcome is one; poor outcome subjects are all others. Table Three shows the distribution of out-

---

Insert Table Three about here

---

come scores for all three age levels. Note that the latency group has the largest number of subjects, adolescence next, and adulthood the smallest number, reflecting the fact that some of the children being followed had not reached these older categories at the time of data collection.

Analysis. The median test was used, since the data are ordered but not interval data. The chi-square distribution with one degree of freedom was used to determine the level of significance (Siegel, 1956).

Outcome as a Function of Diagnosis and of Cognitive Skills on Latency.

All 68 subjects, 33 Autistics and 35 Schizophrenics were grouped according to outcome. Table Four shows the distribu-

---

Insert Table Four about here

---

tion of good and poor cognitive skills between the two outcome groups. Low cognitive scorers had significantly poorer outcomes in latency than did high cognitive scorers (chi square = 15.22; $p < .001$).

Table 3

Distribution of Outcomes
in Latency, Adolescence, and Adulthood

Outcome Level	Frequency		
	Latency	Adolescence	Adulthood
1	29	27	13
2	8	8	5
3	8	5	4
4	9	7	3
5	12	9	5
6	2	3	0
Total	68	59	30
Median	1.6	1.3	1.0

Table 4

Distribution of Outcome in Latency
by Cognitive Performance in Preschool

	Good Outcome (level 1)	Poor Outcome (levels 2 - 6)
Low Cognitive Score (0 - 2)	4	25
High Cognitive Score (3 - 9)	25	14

All subjects were also grouped according to diagnosis and their outcomes charted. These data are presented in Table Five. The schizophrenic group had significantly more

---
Insert Table Five about here
---

subjects with good outcome than did the autistic group (chi square = 7.5, $p < .01$).

Outcome as a Function of Diagnosis and of Cognitive Skills, Adolescence

Table 6 shows the distribution of outcome by cognitive

Insert Table Six about here
---

function for the subjects for whom outcome data were available in adolescence. There were 59 subjects in this pool. Again, more subjects with high cognitive scores were in the good outcome group (chi square = 3.4, $p < .05$). Table 7

Insert Table Seven about here
---

shows outcome at adolescence by diagnosis. No significant differences in outcome were found (chi square = 3.1, $p < .10$).

Table 5

Distribution of Outcome in Latency by Diagnosis

	Good Outcome (level 1)	Poor Outcome (levels 2 - 6)
Autistic	8	25
Schizophrenic	21	14

Table 6

Distribution of Outcome

in Adolescence by Cognitive Performance

	Good Outcome (level 1)	Poor Outcome (levels 2 - 6)
Low Cognitive Score	7	17
High Cognitive Score	20	15

Table 7

Distribution of Outcome
in Adolescence by Diagnosis

	Good Outcome (level 1)	Poor Outcome (levels 2 - 6)
Autistic	10	19
Schizophrenic	17	13

Outcome as a Function of Diagnosis and of Cognitive Skills, Adulthood

Table 8 shows the distribution of outcome by cognitive

Insert Table Eight about here

---

function for the subjects for whom outcome data were available in adulthood. There were 30 subjects in this pool. Cognitive score was not related to outcome in adulthood (chi square = .62, $p > .10$). Table 9 shows that diagnosis was re-

---

Insert Table Nine about here

---

lated to adult outcome. Again, the schizophrenic group had significantly more subjects with good outcome in adulthood (chi square = 5.43, $p < .02$).

Table 8

Distribution of Outcome

in Adulthood by Cognitive Performance

	Good Outcome (level 1)	Poor Outcome (levels 2 - 6)
Low Cognitive Score	4	10
High Cognitive Score	9	7

Table 9

Distribution of Outcome
in Adulthood by Diagnosis

	Good Outcome (level 1)	Poor Outcome (levels 2 - 6)
Autistic	2	11
Schizophrenic	11	6

DISCUSSION

Limitations of the Data and of the Study

The opportunity to analyze data concerning the functioning in their preschool years and outcome in late childhood of over 60 very disturbed young children with no detectable neurological or sensory handicaps is rare. The fact that 200 potential cases had to be screened in order that these 68 were located testifies to the difficulty of isolating a sample of this size and with the quality of information available about the subjects. The data sample represents the work of hundreds of professional workers over 30 years of work in an outstanding metropolitan treatment and research facility. However, with this historical and professional richness of information must come limitations to the validity, reliability, and applicability of the information considered within this study.

Validity of the measures. The diagnoses of the children as to their being Kanner-autistic or Rimland-schizophrenic rests in most cases on a complex data-gathering and evaluating process. The children were all interviewed by psychiatrists, psychologists, or by trainees under close supervision in each of these fields, and the observations of these interviews recorded as process notes which were included in the children's case records. The parents were interviewed by psychiatric social workers or supervised social work trainees

who recorded the developmental histories of the children and the parents' reports of current behavior and family child-care practices. Process recording of these interviews were also kept. The determination of the extent to which a child exhibited behaviors listed by Kanner as autistic or how his behavior should be rated on Rimland's Checklist E-2 was generally made by a rater who examined only the case records and who did not observe the child or interview his parents. Since the case-material was quite rich, it was possible for the raters to glean considerable data from the files. However, in those instances where parents themselves also filled out Rimland's E-2, the reports were found to differ from the blind rater-made checklist for the child. The psychologist who supervised the raters verified that the parents' use of the checklist resulted in a more accurate portrayal of their child than was the report of the rater. Therefore, the assignment of children to one diagnostic group or the other is of challengeable validity. Errors could have been made in the reporting of data by the child and parent interviewees, or they could have failed to gather crucial data, or the raters may have misinterpreted data accurately reported.

The evaluation of cognitive functioning of the children was also made on the basis of written reports made by the testing psychologist. The difficulty of assessing the intellectual functioning of any preschool child is well known, and all problems of valid assessment are magnified in the case of

the very disturbed preschooler. A sample of the raw data from which a determination of a child's intellectual functioning was made is included in the appendix. While it is vividly descriptive, it is not quantitative. Inferences of a quantitative kind were made by attempting to note which of nine categories of intellectual behavior--if any--were demonstrated by the child in the standardized experience of being exposed to the Stanford-Binet test. These nine categories were developed by examination of the skills needed to solve the Binet tasks. They have face validity, but it is not known to what extent they measure the traits so named, or whether they are "pure" intellectual functions, or whether there are better ways to measure these same intellectual functions.

The children have no <u>detected</u> neurological or sensory impairments. The evaluations of neurologic competence were done by an outstanding specialist in the field, using clinical judgment as well as standard examination of reflexive and voluntary behavior and electro-encephalography. Adequacy of vision, hearing, touch, etc. were validated by the child's physician or a specialist if there were any question about sensory competence. However, the neurological and sensory assessment of very young children, and especially of children who do not communicate up to age level is extremely difficult. The validity of the complete exclusion of impaired children is open to question.

The follow-up data is represented by a unitary figure, but this summarizes reports of parents, teachers, psycho-educators, and/or psychotherapists about the child's functioning. Intelligence test scores, placement in school grade or institutional setting, social interaction, and psycho-emotional functioning are considered together. This broad assessment of functioning is represented in our data as a continuum, and argument can be made that it is a continuum of adequacy of coping with the world. However, quantitative and qualitative aspects may be inextricably merged. For example, a very bright child who has learned to manipulate words and symbols, but who is very poor at interpersonal relationships would probably be rated higher on this continuum than would a better-relating but not very intelligent child. Intelligence (which relates to one of the dependent variables in this study) is thus a factor in the measurement of outcome (the independent variable). Moreover, it is a factor which cannot be quantified within the independent variable, so that one cannot say with certainty how much its effects are seen in the outcome. To some extent, then, the uncertain validity of the outcome measures contributes to circularity of the study itself. Outcome has proved to be a quite stable variable over time, however. No child in Brown and Kaplan's study has varied more than one of their 11 levels in outcome, from latency to adulthood.

Reliability of the measures. The reliability of the

ratings made upon which the diagnostic category assignments were made is not known. The criteria are carefully spelled out in the Etiology and Prognosis in Childhood Psychosis Rating Scale which the raters used to codify the data in the files. A check made of rater reliability in the use of this instrument showed good inter-rater reliability.

The reliability of the data bearing on cognitive development rests primarily on the fact that the same instrument was used by (in most instances) the same examiner, in the same testing room over many years. However, this source of reliability could also be a source of consistent bias. Another examiner might have used different probes to elicit behavior from the child, might have chosen to introduce test items not used by Mrs. Young because she assumed they were beyond the child or for some other reason.

The interpretation of the examination findings and the quantifying into the nine cognitive categories used was done by one rater (the author of the study) without cross-checking by another rater. Data for a rough check of reliability is available, in that the Putnam Center raters made note of the "strongest area" of cognitive functioning, using the same categories. Comparison of "strongest area" on that coding form for each subject with the areas checked for each subject on the raw data forms for this study could at least reveal if the researcher missed the subject's best area of functioning in her overall assessment. Protection of con-

fidentiality of the records makes independent rater reliability checking difficult at this time.

Applicability of the study. The Stanford-Binet was a very sophisticated instrument in the early forties, when gathering of the data was begun at the Putnam Center. Continued use of that instrument has yielded a consistent body of data, for which this researcher is very grateful. However, the Stanford-Binet has been replaced as an evaluative tool by more sensitive, easier to score, more recently standardized, and more broadly standardized instruments in most clinical practices. A researcher or practitioner who would like to make use of the findings of this study in evaluating psychotic preschool children might, for example, prefer to use the Weschler Preschool and Primary Test of Intelligence. In that case, the categories used in this study would have to be revised to suit the skills and tasks involved in that test. As is always the case in using a psychological evaluation instrument, a trained and skilled examiner is needed. But evaluation of psychotic preschoolers requires specialized training beyond that which develops competence to test the usual clinic population. Personal qualities of patience, sensitivity, tolerance for bizarre behavior, and interpersonal skill which a well-trained psychologist will not necessarily have are called for.

Similarly, while Kanner's critieria for diagnosis of autism and Rimland's checklist for childhood schizophrenia

are straightforward to apply, they do depend on a sophisticated practitioner's interpretation. The conclusions to be discussed concerning this study depend upon the careful definition of the terms used. We are talking about "autism" as determined by Kanner's criteria, and "childhood schizophrenia" as measured by Rimland's Form E-2, and about "cognitive skills" as quantified in terms of the categories described in this study. We are not making statements which necessarily can be generalized to autism, childhood schizophrenia, or cognition in more abstract senses.

Implications of These Findings for Diagnosis and Prognosis

The finding that diagnosis (autism or schizophrenia) is statistically related to prognosis (outcome in late childhood) supports the value of using the Kanner-Rimland criteria to make these diagnoses. The child psychiatrist, clinical psychologist, psychiatric social work therapist, or--increasingly--special educator who is called upon to advise parents concerning planning for a very disturbed child can begin an assessment by gathering the information needed to make the differential diagnosis.

Kanner's five criteria are: profound withdrawal of contact from people, obsessive desire for sameness, skillful relation to objects, retention of intelligent and pensive physiognomy, and mutism or language which does not serve interpersonal communication. These criteria, while seemingly

straightforward, actually call for careful observation and weighing of information. An evaluator should have had supervised experience with autistic children before attempting to use these criteria to make a firm diagnosis. Certainly, he cannot gather this information from the parents over the telephone! Rimland's checklist is intended to be filled out by parents and then to be scored by a person trained in its use. The checklist is quite long but contains crucial differentiating items, several of them similar to the Kanner criteria for identifying autism which would serve to distinguish between an autistic and a schizophrenic child.

Although the prognosis for autistic children as a group is bleak, it is known that some quite disturbed classically autistic children do attain normal or nearly normal adult levels of functioning (see, for example; Bosch, 1970; Brown, 1974). On the other hand, some children with very early appearing childhood schizophrenia fail to progress developmentally to normal intellectual levels of functioning. The second finding of this study, that children with a broad range of cognitive skills in the preschool years have a hopeful prognosis, while children with quite limited functioning have a less optimistic prognosis, can help the evaluator to focus on the particular child's potential outcome.

A standard instrument for intellectual assessment of preschool children can be used to gain an understanding of the breadth of the child's cognitive skills. Note that the absolute cooperation of the child is not necessary and that

the I.Q. score per se is not the significant piece of information. Many of the children in this study were not "testable" in the sense of being able to respond to each item presented to them on the Stanford-Binet. Often the examiner coaxed the child to respond, by presenting the material and then setting it aside, and noting the child's behavior without direct watching in order to avoid the close attention to which these children are so sensitive. The ability to perform tasks requiring different cognitive modalities is considered the significant factor.

Those children who were assessed high on both Rimland's Childhood Schizophrenia criteria and Kanner's Childhood Autism criteria were excluded from this study. Apparently these two systems are not absolutely mutually exclusive. This study did not compare subjects on the basis of Rimland's criteria only, since it seemed that the selection of subjects on the basis of Kanner's criteria would result in a more soundly selected group. The Rimland group was based on rater scorings, which were not considered as valid as the sample of parent scorings available for a small sub-group. The evaluator might use Rimland's E-2 to make a differentiation. It is not known whether the outcome predictions made from this study would be applicable in that case. However, the use of the concept of breadth of cognitive skills would be applicable. In cases where the Rimland and Kanner criteria seem to be in contradiction, prognosis could be based more certainly

on assessment of cognitive strengths.

Importance of Language to Complex Cognitive Functioning

The results of this study lend empirical support to clinical wisdom accumulated through experience with psychotic children. Typically this is summarized: "If the child doesn't talk by year five, the prognosis is quite grave." The importance of language to continuing development is shown indirectly by the results of this study. The children were most able to perform those Stanford-Binet tasks that did not depend on verbal mediation. These tasks were given descriptive categories for the purposes of codifying the cognitive data: Fine Motor Skills, Simple Perception, Rote Memory, and Perceptual Analysis and Synthesis. Each of these categories contains at least one task which can be performed without using language or verbal abstraction. A child who gained a score of one, two, or three in cognitive skills almost certainly completed three of those four items. Any child who scored higher than four in cognitive skills had to use language in some manner.

Many people who have worked with autistic young children have been struck by the apparent intelligence, even brilliance which they seem to bring to bear on solving certain life-tasks. Phenomenal spatial memory is reported, often in support of the autistic child's well known antipathy to changes in his spatial environment. A keen sense of spatial

relations is shown by preschool autistic children who dump out jig-saw puzzles too difficult for their normal peers, and solve them wrong-side-up, so that no cues from the picture content are visible. A child I have described elsewhere (Marx, 1974) showed a sense of harmony and interest in exploring chords and intervals at the age of four, at a time when she was just beginning to speak a few words. Some children who have no effective use of language for communication learn nursery rhymes, television jingles, poetry--whatever words are repeated to them--but in a parrot-like fashion.

A unitary, quantitative concept of intelligence would lead one to hope that this kind of ability would serve as the basis for intellectual growth. A child who is "brilliant" at two (solves many spatial and motor tasks) should continue to be bright or at least not retarded at twelve. However, continued normal development demands the emergence of new strengths. The ability to use language is apparently a more important skill which emerges relatively late in the child's development and becomes perfected over many years.

Humankind has made such extensive use of language that its use has become almost synonymous with human existence. "Cogito, ergo sum" probably means "I think in words, . . ." As more and more use is required of verbal ability to meet the demands of normal existence for the human child, the child who does not have access to language falls further and further behind.

The Importance of Cognition to Emotional Growth

Understanding is important to a sense of safety and well being. Changes become predictable, even controllable, when one understands the abstractions which govern the change. Seasons, death, destruction by fire, disappearance and reappearance of family members, and other changes are important issues for preschool children. They learn not to be terrified of these by the mediation of language. The predictability of the seasons and the signs of change, holiday rituals which are enjoyable, soothing images of grandfather "in heaven," experiences with fire which show and explain how it can be tame as well as destructive, stories about daddy's job, brother's school, etc. are the curriculum of a normal preschooler's development. The autistic child may have sufficient awareness of the world and the way it works to develop as much anxiety about its dangers as does the normal child. We learn from autistic children, when they do learn to talk, that many of their rituals and preoccupations were designed to ward off dangers and destruction. But they do not have the ability to communicate these fears clearly to others so that their caretakers can reassure them. And even the very sensitive adult, who may suspect what the fear might be, must use non-verbal means to communicate the reassurance. Play therapy becomes especially important. This can be very difficult, and for some sorts of fear reassurance is impossible. The bright but non-verbal child can be left with fears which

he cannot learn to control as normal children do. He must instead use physical avoidance, control his frightening environment with temper tantrums or urgent demonstrations, and then try to turn off his mind when he recognizes fears which he cannot control by other means.

The Implications for Treatment of Very Disturbed Children

It seems clear that, if language is essential to the healthy development of very young children, language acquisition should be given a very high priority in the education of children who do not seem to be acquiring it at a normal rate. Especially if the children seem to be psychotic, emphasis should be placed on teaching them techniques for communicating with other people, no matter what those techniques might be, as long as they work.

Some psychotic children who fail to attend to spoken words respond to the same message if sung. Some seem to pick up sign language. A few psychotic children have learned to read and write although they did not learn spoken words. Often the use of verbal communication comes to psychotic children after they have learned one of these non-verbal means. It should not be argued (as has been done in the case of using signing for deaf children) that the child should be made to learn to communicate like other people. This goal may not be directly attainable, and time cannot be lost waiting and hoping for a breakthrough. The breakthrough may indeed come

after the substitute form of communication has been learned.

At the same time that a cognitive educational program is being developed for the psychotic child emphasizing communication skills, emotional support should be offered. It should be assumed that the child was born with the same emotional needs and fears as other very young children. Even if the child seems bizarre, remote, fearless, apathetic, etc., these behaviors may be masks of fear. Songs, stories, dramatic play which touches on the important developmental issues of the preschool years should be included in the psychotic child's life and presented in whatever mode best communicates to the child.

SUMMARY AND CONCLUSIONS

Data have been presented from James Jackson Putnam Children's Center, showing that the prognosis for preschool psychotic children is more positive for Rimland-Schizophrenic than for Kanner-Autistic children. Prognosis is also better for children who have a broad range of cognitive skills, especially including language, than for those with a narrow range of cognitive skills.

These data support the recommendation that the diagnostician not only make a psychiatric diagnosis, but also assess the ability of the child to use language. Recommendations for treatment would then include plans for the acquisition of skills which would foster communication between the child and others.

In view of the handicap in using language and understanding abstraction special attention should be paid by a therapist or educator to meeting the child's need to understand and gain mastery over those important questions which are the basis for young children's emotional development. Such issues as the integrity of the body, separation from caretakers, body functions, death, and seasonal changes should be dealt with in the education of these children, as they are in the normal home and pre-school. But these issues must be explained in a manner which the child with his handicaps can understand.

Initial prognosis would rest on the psychiatric diagno-

sis, language, and communicative skills, and on the ability of the child's family and community to provide supportive and remedial care. Later evaluations would take special account of language and/or communication skills acquisition.

REFERENCES

Brown, J. & Kaplan, S. Infantile autism then and now. Paper presented at the Meeting of the American Orthopsychiatric Association, San Francisco, April, 1974.

Brown, J. Etiology and prognosis in childhood psychosis rating scale. Unpublished manuscript, Boston, 1973.

Bettleheim, B. The empty fortress. New York: The Free Press, 1967.

Bosch, G. Infantile autism. New York: Springer-Verlag, 1970.

DeMeyer, M., Barton, S., & Norton, J. A comparison of adaptive verbal and motor profiles of psychotic and non-psychotic subnormal children. Journal of Autism and Childhood Schizophrenia, 1972, 2, 359-377.

DeMeyer, M., Barton, S., DeMeyer, W., Norton, J., Allen, J., & Steele, R. Prognosis in autism: A follow-up study. Journal of Autism and Childhood Schizophrenia, 1973, 3, 199-246.

Fraiberg, S. The magic years. New York: Charles Scribners' Sons, 1959.

Fraiberg, S. Parallel and divergent patterns in blind and sighted infants. Psychoanalytic Study of the Child, 1968, 23, 264-300.

Fraiberg, S. Intervention in infancy: A program for blind infants. Journal of the American Academy of Child Psy-

chiatry, 1971, 10, 381-405.

Fraiberg, S., Smith, M., & Adelson, E. An educational program for blind infants. Journal of Special Education, 1969, 3, 121-139.

Freud, A. Normality and pathology in childhood. New York: International Universities Press, 1965.

Hermelin, B. Locating events in space and time: Experiments with autistic, blind, and deaf children. Journal of Autism and Childhood Schizophrenia, 1972, 2, 288-298.

Kanner, L. Problems of nosology and psychodynamics of early infantile autism. American Journal of Orthopsychiatry, 1949, 4]6-426.

Kanner, L. Early infantile autism. Journal of Pediatrics, 1944, 25, 211-217.

Kanner, L. Childhood psychosis: Initial studies and new insights. Washington, D.C.: V.H. Winston and Sons, 1973.

Lovass, O. I., Berberich, J., Perloff, B., & Schaeffer, B. Acquisition of imitative speech in schizophrenic children. Science, Feb., 1966.

Mahler, M. On child psychosis in schizophrenia; autistic and symbiotic infantile psychosis. Psychoanalytic Study of the Child, Vol. 7. New York: International Universities Press, 1952.

Marx, P. Cognitive and perceptual development in blind infants. Unpublished manuscript, University of Massachu-

setts, 1974.

Park, C. The seige. Waltham, Mass.: Little, Brown, 1972.

Rimland, B. Infantile autism. New York: Appleton-Century-Crofts, 1964.

Rutter, M. & Lockyer, L. A five to fifteen-year follow-up study of infantile psychosis. British Journal of Psychiatry, 1967, 113, 1169-1182.

Siegel, S. Nonparametric statistics. New York: McGraw Hill, 1956.

Simmons, J. Comments at the Spring Conference for Teachers of Emotionally Disturbed Children. Boston, May 10, 1969.

Simmons, J. & Ferster, C. Behavior therapy with children. Psychological Record, 1966, 16, 65-71.

Treffert, D., McAndrew, J., & Freifuerst, P. An inpatient treatment program and outcome for 57 autistic and schizophrenic children. Journal of Autism and Childhood Schizophrenia, 1973, 3, 138-153.

Mary Louise Schell, M.D.
Mass. Gen. Hosp.

Hard and Soft Neurological Signs card 3 #68

HARD SIGNS are "objective" signs specifically tested for.

including tests of

I sensation

special sensation: sight & hearing

pain

touch: light & deep
e.g. wiggle patient's thumb: ask is it up or down

position

temperature: hot & cold

II motion

are movements present

" " weak

" " absent

[which movements is important]

III coordination

gross motion

fine motion

IV reflexes

tests include tandem walking (foot after foot) and Romberg test (patient standing w. eyes closed, arms ex-

tended in front)

V reflexes

for normal motor reflexes, whether present, absent, extreme, and equal on both sides of body

for abnormal reflexes: whether present

Babinski (plantar) = bending back-ward of toes on stimulating side of foot; NOTE: this is normal in newborns

grasp reflex; normal in newborns

sucking reflex; " " "

moro reflex;

VI muscle tone

too little

too much spasticity

rigidity

SOFT SIGNS cover the same areas as hard signs but are minimal demonstrations of the hard signs. They are more impressionistic and intuitive and may be presented in a form like, "This child seems...," etc.

	IQ	LEARNING	SOCIAL RELATIONS	SURFACE PSYCHOPATHOLOGY
1. Normal-neurotic	Average or better	Up to age	Accepted by peers	Neurotic or none
2. Brittle-schizoid	Average or better	Up to age	Friends based on interests; considered "odd"	"Schitzy"
3. Eruptive-schizoid	Dull normal (80-89) or better	Somewhat retarded or better	Social drives, including sex, but too narcissistic for friendships	Primary process breakthroughs; "colorful"
4. Schizophrenic	Dull normal or better at some time (may lose capacity)	Somewhat retarded or better at some time	Usually talk "at" people; usually pregenital social orientation	Pervasive thinking disorder (e.g. delusions)
5. Passive retarded mild	Dull (70-79)	Somewhat retarded formal learning; grade 2 level, at least	Parallel play; may join group on prefantasy, toddler level	Little
6. Eruptive retarded mild	Dull (70-79)	Somewhat retarded formal learning; grade 2 level, at least	Some behavior and management problems	Breakthroughs of aggressive and/or sexual behavior; somewhat "crazy"
7. Passive retarded mild	Educable (55-69) or less or untestable	Some formal learning; prints name, counts	Definitely relates to specific people	Little
8. Eruptive retarded moderate	Educable (55-69) or less or untestable	Some formal learning; prints name, counts	Definitely relates to specific people	Definite psychotic mannerisms (e.g. hand movements, talking to self)
9. Passive retarded severe	Trainable (25-54) or less or untestable	No formal learning but toilet trained, feeds self	Some evidence recognizes specific people	Little
10. Eruptive retarded severe	Trainable (25-54) or less or untestable	No formal learning but toilet trained, feeds self	Some evidence recognizes specific people	Management problem; definitely "crazy"
11. Regressed-arrested	Less than 20 or untestable	No formal learning; no socialized behavior	No object relations	May be bizarre or not

Card 6

64

11. Strongest area
    1. Fine motor alone. (Tower II; Bead Stringing III; WISC Coding)
    2. Simple perception. (Form Board II, II-6; Sequin; Mare and Foal; Discrimination of Animal Pictures III-6; Discrimination of Forms IV) Peg Board (M-F)
    3. Rote memory, perceptual. (Picture Memory III; Objects from Memory IV; Paper Folding V; Memory for Designs IX, XI)
    4. Perceptual analysis and synthesis. (Copying forms: Circle III, Cross III, III-6, Square V, Diamond VII; Bridge or 3 cube pyramid III; 6 cube pyramid; Patience Pictures III-6; Completion of Man V; Patience Rectangle V; Paper Cutting IX; Block Counting X; WISC: Block Design, Picture Arrangement, Object Assembly)
    5. Perceptual reasoning and expressive language. (Mutilated Pictures VI; Picture Absurdities VII; WISC: Picture Completion)
    6. Receptive language and perception. (Body Parts II, II-6; Objects by Use II-6; Obeying Simple Commands II-6; Sorting Buttons ~~III-6;~~ Comparison of Balls III-6; Similarities and Differences IV, IV-6, V,; Pictorial Identification IV, IV-6; Aesthetic Comparison IV-6; Commissions IV-6; Maze Tracing VI.)
    7. Expressive language and perception. (Picture Vocabulary II-IV; Response to Pictures III-6).
    8. Rote Memory, verbal. (Repeating Numbers and Sentences; Memory for Story VIII; Days of the Week VIII; WISC: Information)
    9. Receptive and expressive language, reasoning. (Comprehension III-6, IV, IV-6, VII, VIII; Analogies IV, IV-6, VI, VII; Materials IV-6; Vocabulary V, VI, X; Differences VI; Similarities VII, VIII; Absurdities VIII, IX; Rhymes IX; Finding Reasons X; WISC: Vocabulary, Similarities, Comprehension.)
    10. Aritmetic, number concepts. (Number Concepts VI; Making Change IX; WISC: Aritmetic)
    11. Not enough performance to score

12. Second strongest area: 1-11 above

13. Weakest area
    1. Receptive language (#6)
    2. Expressive language (#7)
    3. 1 + 2
    4. Perceptual analysis and synthesis (#4)
    5. Aritmetic, number concepts (#10)
    6. Abstract reasoning on material with emotionally neutral content
    7. Abstract reasoning on material with emotionally charged content such as Mutilated Pictures, Absurdities, some of Comp. VII)
    8. 6 + 7
    9. Fine motor
    10. Other
    11. Not enough performance to score

14. Second weakest area: 1-11 above

Card 6

65

Kanner's Early Infantile Autism

38. Profound withdrawal of contact from people
    1. highly char. +3
    2. somewhat char. +1
    3. not char. -2

39. Obsessive desire for the preservation of sameness
    1. highly char. +3
    2. somewhat char. +1
    3. not char. -2

40. Skillful relation to objects
    1. highly char. +3
    2. somewhat char. +1
    3. not char. -2

41. Retention of intelligent and pensive physiognomy
    1. highly char. +3
    2. somewhat char. +1
    3. not char. -2

42. Mutism or the kind of language that does not seem intended to serve the purpose of interpersonal communication
    1. highly char. +3
    2. somewhat char. +1
    3. not char. -2

43. Total Early Infantile Autism score (Range -10 to +15)
    1. -10 to -8
    2. -7 to-5
    3. -4 to -2
    4. -1 to +1
    5. +2 to +4
    6. +5 to +7
    7. +8 to +10
    8. +11 to +13
    9. +14, +15

Treatment Variables

44. Child's age at first professional contact (Except pediatrician unless he makes the diagnosis)
    1. 0 to 1-11
    2. 2 to 2-11
    3. 3 to 3-11
    4. 4 to 4-11
    5. 5 to 5-11
    6. 6+

45. Child's age at beginning of treatment
    1. less than 2 years
    2. 2 to 2-5
    3. 2-6 to 2-11
    4. 3-0 to 3-5
    5. 3-6 to 3-11
    6. 4-0 to 4-5
    7. 4-6 to 4-11
    8. 5-0 to 6-0
    9. 6+
    10. not applicable

card 7 66

24. Rimland scale score (rater rated)
    1. 21+
    2. 15-20
    3. 9-14
    4. 3-8
    5. -3 to +2
    6. -9 to -4
    7. -15 to -10
    8. -21 to -16
    9. -22+

25. Rimland scale score (parent rated)
    (1-9 as in #24)

26. Age of child when parent filled out Rimland scale
    1. less than one year from application interview age
    2. 1-2 years from application interview age
    3. 3-5 years from application interview age
    4. 5-10 years from application interview age
    5. more than 10 years after application interview
    6. not applicable

27. Rimland scale speech score (rater rated)
    1. + 7 or above
    2. 0 to +6
    3. -1 to -9

28. Rimland scale speech score (parent rated)
    (1-3 as in #27)

E NEILL
c.a. 3-8

Impressions
(Mrs. Young)

3/25/68

I first met Neill in the nursery room where he was to have lunch with his mother, sister, the lady who cares for him and her children. Early he played with a toy when the other children were already seated ready for their lunch. When he did come to the table he shyly leaned to his mother, finally asking for catsup and spread it on his bread with little interest in his plateful of food.

A slender boy, he has deep set brown eyes, finely chiseled features and thick dark hair that contrasts with his fair skin. He moves at a little jog.

When later he came upstairs with his mother he carried a truck with him, willing to be seated at the table but apparently loathe to leave the nursery room and able to express this later. Restrained there was little exploration of objects and to avoid an awkward situation the materials were shortly introduced, the beads first. This he refused as he did copy of a circle. He responded to picture vocabulary but resistance crept in. He scored at his age. Pictures were refused but he solved the patience puzzle and discriminated balls. Buttons were sorted, first black then white. He also made a block bridge initiatively. Refused were digits. From his mother's lap where he went when he had grown restless, he discriminated forms and pointed out pictorial identification. Now on the floor with his truck he was encouraged to one more task before going downstairs and again at his mother's knee recalled hidden objects. Once earlier his mother offered to say numbers for him even if they are easy ones and he had refused. When it was time to leave he hesitated but then said thinly he wanted to go.

Examination Findings: On the Stanford Binet test he passed two tests at yr. III, a block bridge and picture vocabulary. Button sorting scored at III-6 as did discrimination of balls, patience puzzle and matching animals. He discriminated forms at IV and passed pictorial identification. Hidden objects were recalled.

Summary: Neill's Stanford Binet performance was limited by his resistance but he did respond to the challenge of perception tests above his age, discrimination of forms and pictorial identification. Eye-hand coordination is good judging by his button sorting. Autocritical judgment was exercised on the animal matching test where he made a spontaneous correction. His formal vocabulary appears to be in keeping with his age.

A slender boy with deep set brown eyes and chiseled features, he moves at a little jog. He speaks spontaneously as he did in the informality of the nursery room but his voice tended to be thin especially when under tension. He had demurred at eating his lunch, leaning close to his mother and this was true in the testing situation where he reacted shyly. He consistently refused bead stringing and copy of a circle but was willing to sort buttons and build a block bridge initatively. He also responded to picture vocabulary, refusing pictures and digit repetition. His interest was caught for animal matching, discrimination of forms and pictorial identification. Having become increasingly resistant and coaxing ~~M~~ his mother to go, he ran the engine about the room. With the promise

68

E , NEILL
c.a. 3-8

Impressions
(Mrs. Young)

3/25/68

of going he did cooperate on hidden objects recalled.

The impression is that Neill is functioning intellectually well within his age and probably [illegible] above but that he reacts to pressure with increasing resistance, his reticence respected by his mother.

eb