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THE INTERPERSONAL NEEDS OF LEARNING DISABLED CHILDREN

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THE INTERPERSONAL NEEDS OF LEARNING DISABLED CHILDREN

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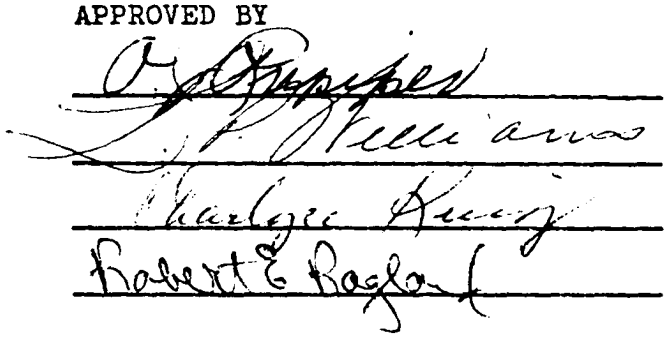

DISSERTATION COMMITTEE

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CHAPTER I

INTRODUCTION

Consideration of the deficits of learning disabled children was approached from several viewpoints including those of the disciplines of psychology and education. Each discipline offered its own theoretical basis for the etiology, identification, and remediation of learning disorders, often based upon speculation; and the relevance of possible correlations between data gathered between and within the differing disciplines received scant attention. A variety of instruments were used by psychologists and educators for the differential diagnosis of learning disabled children's cognitive, maturational, and psycholinguistic strengths and deficits. While behavioral problems were often the motivating factor in initiating the process of differential diagnosis, the notion that learning disorders might have been influenced by maladjustments in personal relationship variables was not investigated scientifically. Consequently, a factorial analysis of the interpersonal relationships of learning disabled children with the other differential diagnosis variables seemed to offer some clarification for understanding the facets in the learning disorders syndrome.

Review of Relevant Literature

That learning disabilities was an operational concept used for identifying children with learning disorders and for

structuring diverse remediational programs in the schools could not be denied. However, harmony in the use of terminology and underlying theory had not been achieved.

The category of learning disabilities received its first impetus from the work of Goldstein (1942), a neurologist, whose clinical observations of brain-injured World War I veterans led him to conclude that marked changes in personality, in cognition, and in behavior occurred when cortical injury had been sustained. Such changes were particularly noticeable when injury to the brain involved the frontal lobes. Goldstein observed that the primary deficit was loss of concretistic thinking and the deterioration of symbolic thought. Figure-ground confusion and generalized linguistic disabilities as well as such behavioral reactions as emotional lability, particularly when the environment was not highly structured, were also noted.

Werner and Strauss (1939) investigated such psychological manifestations in children. The work of Goldstein was a direct influence upon their thinking (Hallahan and Cruikshank, 1973, p. 60). Their circle of students and colleagues included a bevy of talented researchers and educators whose later renown as leaders in the field of learning disabilities overshadowed the pioneering work of Werner and Strauss.

The studies of Werner and Strauss centered upon mentally retarded children. While learning disabled children were later identified as non-intellectually deficient in the sense of retardation, the key concepts developed by Werner and Strauss in their investigations of mentally retarded children were applied to the learning disabilities syndrome. Those children who exhibited mental retardation due to possible neurological defects were referred to as <u>exogenous</u> while those children whose mental retardation was due to familial factors were classified as <u>endogenous</u>. Strauss and his protege Kephart (1940) differentiated endogenous children from exogenous children through a behavior-rating scale. The brain-injured children were found to

exhibit impulsive, erratic, and socially unaccepted behaviors. Unlike the endogenous children, they continued to decline in I.Q. points despite placement in standard educational programs.

The field of learning disabilities incorporated the educational techniques which Werner and Strauss developed in an effort to thwart the I.Q. decline found in the exogenous children. Because they attributed the I.Q. decline to the format of the standard educational programs in which the children had been placed, they determined to develop a preventive educational strategy. In deriving their educational concepts from Gestalt principles, they developed a highly structured environment in which extraneous stimuli were controlled. Conversely, the desired stimuli were emphasized. These aspects, together with the indirect remediation of learning deficits through perceptual-motor training, were found in the repertoire of the learning disabilities movement's remediational techniques. (Cruickshank, 1967; Myers & Hammill, 1969; McCarthy & McCarthy, 1969; Lerner, 1971; Frostig, 1973; Gearhart, 1973).

The learning disabilities field derived its pivotal diagnostic principle of assessing intraindividual differences from the thinking of Werner and Strauss. Hallahan and Cruickshank (1973) stated that "concern for the diagnosis of particular disabilities and educational procedures based upon the Werner and Strauss recommendations became an intrinsic element of the basic principles upon which the field of learning disabilities was constructed (p. 65)". According to Hallahan and Cruickshank (1973), Werner first formulated this concept in 1937 in an effort to more fully understand normal child psychology. The concept was more completely developed in collaboration with Strauss in connection with their observations of mentally retarded children. How a child achieved a score was the focus rather than a particular test score. The field of learning disabilities appropriated this concept to differentiate learning disabled children from both the mentally retarded and the normal categories as well as to assess intraindividual strengths and deficits for remediation

purposes (Clements, Lehtinen & Lukens, 1963; Kirk, 1960, 1962, 1968).

The assessment procedures and the educational concepts of Werner and Strauss were elucidated in a book entitled Psychopathology and Education of the Brain-Injured Child which was co-authored by Strauss and his co-worker Lehtinen (1947). This now-classic work was generally cited in the literature as the seminal work in the field of learning disabilities (McCarthy & McCarthy, 1969; Myers & Hammill, 1969; Senf, 1973). The terms brain-injured, minimal brain damage, and Strauss syndrome were used to denote the children with seemingly inexplicable learning disorders which Strauss theorized were caused by presumable neurologic impairment. The learning disabilities field applied these terms to children of normal intelligence, thus deviating from Strauss and Werner's concern with the mentally retarded (Clements, 1966; Crawford, 1966; Kephart, 1960, 1963; Johnson & Myklebust, 1967). Strauss and Lehtinen (1947) rather than Werner and Strauss were, therefore, credited as the pioneers in the field of learning disabilities. Their definition for the brain-injured child was:

> The brain-injured child is the child who before, during or after birth has received an injury to or suffered an infection of the brain. As a result of such organic impairment, defects of the neuromotor system may be present or absent; however, such a child may show disturbances in perception, thinking, and emotional behavior, either separately or in combination. This disturbance can be demonstrated by specific tests. These disturbances prevent or impede a normal learning process. Special educational methods have been devised to remedy these specific handicaps (Strauss and Lehtinen, 1947, p. 4).

Strauss and Kephart (1955) collaborated on a second volume which updated the works of Strauss and Lehtinen (1947). Specific sections were included on the brain-injured child of normal intelligence. Kephart (1960, 1963, 1966) then deviated from the theoretical framework of Werner and Strauss to develop

a largely motoric theory and remediation program for children with learning disorders. However, Kephart's continued interest in perceptual problems was traced back to the influence of Werner and Strauss. Cruickshank (Cruickshank, Bentzen, Ratzeburg, & Tannhauser, 1961; Cruickshank, 1967) and Barsch (1965) also derived their salient ideas from their associations with Werner and Strauss.

Frostig devised the Developmental Test of Visual Perception (Frostig, Lefever, & Whittlesey, 1961; Frostig, et al., 1964) which had widespread use in the diagnosis of learning disabilities. She regarded Werner, Strauss, and Lehtinen as important influences in the development of her theoretical orientation (letter cited in Hallahan & Cruickshank, 1973, p. 85). More recently Frostig (Frostig & Maslow, 1973) described her eclectic position with the following quotation:

> There have been (in my own work) flirtations with many theoretical positions.... (I am a) part of all theories that I have had and I am glad. My only regret is that I have not had meaningful encounters with still other theoretical systems (p. 43).

Many sources attributed the term learning disabilities to Kirk (1962) who applied it to children who have disorders in language, speech, reading, and associated communication skills without accompanying sensory deficits or mental retardation (Hallahan & Cruickshank, 1973; Lerner, 1971; McCarthy & McCarthy, 1969). Kirk used the term learning disabilities in an effort to direct attention away from medical approaches and toward psychoeducational functions. This term was adopted by an organization for parents and professionals, the Association for Children with Learning Disabilities, which brought the educational needs of such children into public attention on both federal and state levels.

Widespread concern for children with learning disabilities was probably most enhanced by dissemination of the three reports which culminated the work of a collaborative project funded by the federal government and directed by Clements (1963-1969). Agencies of the federal government involved in this project included the National Institute of Neurological Diseases and

Stroke, National Institutes of Health; the Bureau of Education for the Handicapped, United States Office of Education, Department of Health, Education and Welfare; and the Neurological and Sensory Disease Control Program, Health Services and Mental Health Administration, Department of Health, Education and Welfare. The private philanthropic Easter Seal Research Foundation, National Society of Crippled Children and Adults, shared the responsibilities for supporting the Task Forces and for preparing the reports which culminated the studies and research of the three Task Forces.

Task Force I (Clements, 1966) attempted to clarify the issues involved as well as to develop a blueprint for action. Classification of the symptomatology, definition of the overlapping terminology, and diagnostic criteria were exhaustively considered. In particular, the use of more precise classification so that supporting statistical data could bear weight in determining priorities for funding learning disabilities programs was believed to be a major outcome of Task Force I. Fifteen categories with 100 different descriptions of behavior of children with learning disorders were identified. Ten characteristics were found to be most often cited: those of hyperactivity, perceptual-motor impairments, emotional lability, general coordination deficits, disorders of attention, impulsivity, disorders of memory and thinking, specific learning disabilities, disorders of speech and hearing, and equivocal neurological signs and electroencephalographic irregularities (Clements, 1966, p. 15). Thirty-eight terms used to label the child with learning disabilities were then prevalent. They included the following:

> association deficit pathology, hyperkinetic behavior syndrome, organic brain disease, organic brain damage, organic brain dysfunction, minimal brain damage, diffuse brain damage, aggressive behavior disorder, organic behavior disorder, organic drivenness, character impulse disorder, hyperkinetic impulse disorder, neurophrenia, psychoneurological learning disorders, hyperkinetic syndrome, cerebral dysfunction, choreiform syndrome, dyslexia, hyperexcitability syndrome,

> minor brain damage, primary reading retardation, perceptual cripple, minimal brain injury, minimal cerebral injury, minimal chronic brain syndrome, clumsy child syndrome, specific reading disability, hypokinetic syndrome, minimal cerebral damage, perceptually handicapped, minimal cerebral palsy, aphasoid syndrome, learning disabilities, attention disorders, conceptually handicapped, interjacent child, cerebral dys-synchronization syndrome (Clements, 1966, p. 9).

Unfortunately, it would seem that the Task Force reports perpetuated the confusion in use of terminology. The term minimal brain dysfunction was adopted for the titles of two of the reports (Clements, 1966; Haring & Miller, 1969). The third report used the term central processing dysfunctions in its title (Chalfant & Scheffelin, 1969).

The Phase Two report (Haring & Miller, 1969) of the National Project on Learning Disabilities in Children revealed the predominance of three approaches to training learning disabled children: the psychoeducational, the structured, and the behavioral approaches. Evaluation and assessment of learning disabled children proceeded either from the psychoeducational approach, the psycholinguistic approach, or the behavioral analysis approach.

The Phase Three report (Chalfant & Scheffelin, 1969) involved a survey of approximately 5,000 references in an exhaustive search of the literature relating to learning disabilities. Research concerning emotional disturbance and social maladjustment was deliberately omitted because it was believed that "they represent a large and distinct problem area which merits special study in its own right (Chalfant & Scheffelin, 1969, p. 4)". Because of the influence which this Project held, such a statement undoubtedly swayed many researchers from studying possible relationships between the psychological pattern of learning deficits and behavior which had its sources in the instinctual needs. Despite the attempt by Chalfant & Scheffelin (1969) to analyze all existing pertinent research, the prefatory remarks by Masland acknowledged that "an all-out systematic research attack on the

problem of learning disabilities is long overdue (Chalfant & Scheffelin, 1969, p. iv)." The culmination of the three Task Forces found the basic issues, such as a definition of learning disabilities and diagnostic measures, still unresolved.

A longitudinal study of 177 learning disabled children aged 6 - 12 years was conducted by Koppitz (1971). She investigated the occurrence of such behavior problems as restlessness, low frustration tolerance, explosiveness, and anxiety, and noted that "a child's behavior may be a response to internal or external stresses (Koppitz, 1971, p. 20)". Koppitz found that 91 per cent of these learning disabled children were described by their teachers as exhibiting restlessness and hyperactivity; 54 per cent exhibited low frustration tolerance; 43 per cent, explosiveness; and 42 per cent exhibited anxiety. More than a third, or 38 per cent, were reported to exhibit withdrawn behavior, while 33 per cent displayed aggressive behavior (p. 22). Koppitz found that no two children displayed the same pattern of behavior problems. After five years the behavior was again investigated: those children most often returned to regular classes had initially exhibited a withdrawn pattern of behavior, whereas those children most often excluded from the learning disabilities classes and hospitalized displayed such symptoms as restlessness, explosiveness, and aggression. Ten per cent of the children were withdrawn from the special classes by their parents, contrary to staff recommendations. Koppitz attributed such withdrawals to the unrealistic expectations on the part of the parents who were disappointed when no quick miracles occurred (pp.176-179).

A psychologist, Mongcal-Luong (1974), conducted a longitudinal study of 200 children from ages four months to seven years at the end of the study. All were children of low-income Blacks and all were full-term babies with normal birth weight . Her results indicated that immature social behavior and abnormalities of behavior control, such as temper tantrums, impulsivity, and destructiveness, were related to psychological and learning difficulties at age seven years.

A neurologist, Denckla (1972), clinically analyzed 190 of her patients, whom she examined due to suspected learning disabilities. She did not report the ages, but referred to this group as "children". Denckla found that 10 per cent of the cases could be grouped into a dyscontrol syndrome, describing them as having "socio-emotional lives (that) are far from normal; often they succeed in completely antagonizing parents, peers, and teachers....(p. 406)."

Cowgill, Friedland, and Shapiro (1973) investigated the characteristics of 37 kindergarten boys diagnosed as learning disabled who were matched with 37 kindergarten boys of similar ages and IQs who had no observable learning disabilities. Judges rated the two groups on measures which included the assessment of social and emotional adjustment. The findings indicated that the boys diagnosed as learning disabled differed significantly in all areas assessed; their social and emotional adjustment were rated poor.

Studies such as those cited by Koppitz (1971), Mongcal-Luong (1974), Denckla (1973), and Cowgill, et al. (1973) confirmed that children with learning disabilities had concomitant difficulties in the area of social behavior. Auerbach (1971) posited that learning disabilities in children were reinforced by the interaction of such children with others in their life space, particularly by the adults. Auerbach approached these interpersonal relationships from the viewpoint of the adults and the changes that could be made in the adults' reactions to the learning disabled children's behavior patterns. While learning disabled children were often unable to control their maladjustment patterns, which Auerbach categorized as being primarily distractibility, hyperactivity, rigidity, and emotional lability, it was reasonable to expect that the adults in their environment could gain insight concerning the role of interpersonal needs which would assist them to more effectively structure remediation programs for such children. Auerbach entitled his approach "the

social control of learning disabilities" and based his position upon clinical observations and theoretical considerations.

The literature revealed no scientific investigation of the variables involved in interpersonal relationships of learning disabled children. Panepinto (1970), however, investigated the interpersonal behavior of normal children and their parents through assessment with standardized instruments. In drawing upon the theory formulated by Schutz (1966), he assessed the interpersonal behavior which might be related to the needs for inclusion, control, and affection. The FIRO-B scale, the instrument developed by Schutz (1967) for adults, was administered to 80 parental dyads. Non-FIRO scales were administered to the 80 children. Panepinto hypothesized that imitative learning or modeling within the family atmosphere would create close correlations between the parental interpersonal needs and the children's behavior in interpersonal relationships. While his hypothesis received little statistical support, his findings indicated that the FIRO variables of inclusion, control, and affection were worthy of further research.

Schutz (1961, 1966) postulated that a person's relationships with others were affected by measurable interpersonal needs for affection, control, and inclusion. He further postulated that these three needs "constitute a sufficient set of areas of interpersonal behavior for the prediction and explanation of interpersonal phenomena (1966, p. 196)." These needs, as delineated by Schutz, will be elaborated later.

Thus far no quantifiable study had been made of the interpersonal needs of learning disabled children from the viewpoint of the children nor had any study been reported in the literature which had assessed children with the children's instrument developed by Schutz as an outgrowth of Fundamental Interpersonal Relations Orientation theory (1961, 1966, 1967). Studies had been reported which concluded that learning disabled children exhibited faulty social behavior patterns, based upon the clinical observations and rating scales of educators, psychologists, and neurolo-

gists. This study, therefore, examined the interpersonal relations of learning disabled children on the basis of the theoretical constructs of inclusion, control, and affection as assessed through the FIRO-BC scale (Schutz & Wood, 1972). It examined possible relationships of the learning disabled children's interpersonal needs with other diagnostic variables in an effort to extend the parameters of our present knowledge of the learning disabilities syndrome on a scientific basis.

Rationale of Schutz' Fundamental Interpersonal Relations Orientation Theory

Schutz (1966) postulated that Hartmann's instinctual drives, one of the three factors Hartmann considered essential for ego development (the other two being inherited ego characteristics and the influences of outer reality) could be delineated as a set of three interpersonal needs: the needs for inclusion, control, and affection. The magnitude of the interpersonal needs could be determined from Guttman-based scales. Schutz related the interpersonal needs to Horney's "moving away from people," "moving against people," and "moving towards people," and to Freud's libidinal types--the narcissistic type, the obsessional type, and the erotic type. He also compared the three interpersonal needs to Fromm's three kinds of "interpersonal relatedness": withdrawal-destructiveness which corresponded to the inclusion needs; symbiotic relatedness which corresponded to the control need; and love relatedness which corresponded to the need for affection.

Schutz (1966) proceeded to develop Guttman-based scales for the measurement of his three interpersonal needs by using the parameters of observability, directionality, status of action, and state of relations. Observability involved the degree to which an action of an individual was observable by others; directionality involved the direction of the interaction towards others, towards self, and others towards self; status of action involved the area of behavior--either inclusion, control, or affection; state of

relation involved the description of the relation as being desirable, ideal, anxious, or pathological.

The three interpersonal needs were further elaborated as:

1. The interpersonal need for inclusion behaviorally involved the need to establish and maintain a satisfactory relation with people. On the level of feelings the need for inclusion involved the need to establish and maintain a feeling of mutual interest with other people. In relation to the self, the inclusion need required that the self be significant and worth while.

2. The interpersonal need for control behaviorally involved the need to establish and maintain a satisfactory relation with people with respect to control and power. On the level of feelings the need for control was defined as the need to establish and maintain a feeling of mutual respect for the competence and responsibleness of others. In relation to the self, the control need required that the self be perceived as a competent, responsible person.

3. The interpersonal need for affection behaviorally involved the need to establish and maintain a satisfactory relation with respect to love and affection. On the level of feelings the need for affection was defined as the need to establish and maintain a feeling of mutual affection with others. In relation to self-concept, the affection need required that the self be lovable.

Schutz (1966) asserted that the true basis for compatibility would be in the orientation of group members towards interpersonal relations. In order to predict and structure the compatibility of groups, Schutz constructed the FIRO scales. The title FIRO was an anagram of his theory of interpersonal behavior which he had entitled "Fundamental Interpersonal Relations Orientation". FIRO was used as the title of the book he wrote to explain his theory (1958).

The first scale developed from Schutz's theory concentrated on the assessment of interpersonal behavior and was entitled

the FIRO-B (1967). Schutz drew upon the fundamental interpersonal relations orientation tenets to develop the Life Inter-Personal History Enquiry (hereinafter referred to as LIPHE) scale, the Marital Attitudes Evaluation (hereinafter referred to as MATE) scale, the Educational Values (hereinafter referred to as VAL-ED) scale, and the Coping Operations Preference Enquiry (hereinafter referred to as COPE) scale (1967). The children's form of the FIRO-B, known as the FIRO-BC (1972) was likewise based on the methodology and theoretical constructs underlying the fundamental interpersonal relations orientation theory of needs. All, except the FIRO-B and presumably the FIRO-BC, were termed "experimental" scales by Schutz in the manual he authored for administration of the scales (1967, p. 4).

Schutz (1966) speculated that interpersonal development occurred in three major cycles. The first cycle involved the integration and resolution of interpersonal relations with the parents, the second cycle involved the resolution and integration of relations with peers, and the third cycle involved relations to child figures. The three phases of inclusion, control, and affection occurred within that order in each cycle. Inclusion was placed at the initial stage of the child's development. Affectional relations were placed last because they demanded an investment of the self in another person, which would not be possible in the infant. Moreover, to Schutz inclusion behavior paralleled the oral stage with its emphasis on satisfying self needs, control paralleled the anal stage, and affection paralleled the phallic stage. The research of Spitz and Goldfarb were cited by Schutz in confirmation of his ordering of the three phases of inclusion, control, and affection (1966, pp. 174-176).

Inclusion, therefore, was the first interpersonal need to be developmentally resolved in Schutz' theory. The needs for control and affection required resolution, respectively. It was implied that the integrated self would both satisfactorily resolve the three basic needs and harmoniously maintain a balance among

the three basic needs (Ryan, 1971).

Summary

Research in the field of learning disabilities proceeded from diverse theoretical orientations, leading to a proliferation of terminology and a profusion of speculation. The historical foundations were traced to neurological and psychological studies of brain-damaged adults and mentally retarded children (Goldstein, 1942; Strauss and Lehtinen, 1947). A concerted effort on the part of several agencies to harmonize terminology and stabilize the theoretical basis for identification and remediation of learning disabled children culminated in three report (Clements, 1966; Haring and Miller, 1969; Chalfant and Scheffelin, 1969). Socio-emotional implications were largely ignored in those reports, but several researchers indicated that concomitant maladjustments in social behavior were prevalent in learning disabled children.

Therefore, as an outgrowth of such research and the specific premise of Auerbach (1971) that social control of learning disabilities was valuable, this study sought to scientifically investigate the social behavior of learning disabled children. The aspect of interpersonal relations was selected for the investigation because (1) it was based upon tenable theory (Schutz, 1961; 1966); (2) it provided useful variables for assessment purposes; and (3) research indicated that the variables were worthy of further study (Panepinto, 1972).

CHAPTER II

THE PROBLEM AND PROCEDURES

Introduction

This study was an outgrowth of the assumption that many educators, psychologists, and other professionals such as pediatricians and neurologists have with respect to the relationships of learning disabled children with teachers, peers, and parents which might predictably affect their learning problems. Such assumptions seem to have been based upon clinical observations and behavior ratings. Schutz (1961, 1966) developed scales to assess variables which enter into the basic aspects of interpersonal relations. The use of these scales indicated that the measurement of three interpersonal needs may be sufficient to predict the pattern of interpersonal relationships and, therefore, to structure that pattern. The interpersonal needs, which Schutz theorized are basic and akin to instinctual drives, were the needs for inclusion, control, and affection. The major problem area of this study was the factorial analysis of the diagnostic variables which were used to identify the learning disabled children together with the learning disabled children's performances on the scales developed by Schutz.

Statement of the Problem

Variables comprising interpersonal needs of learning disabled children were not quantified in the literature. While maladjustment in social behavior was reported, concern focused on neurological, perceptual, and cognitive defects. Because of this lack of sufficient data in the area of interpersonal relations, an attempt was made to ascertain if the FIRO-BC (Schutz and Wood, 1972) scale would be appropriate for extending the parameters of present understanding of variables affecting learning disabled children.

Operational Definitions

For purposes of this investigation important terms were defined in the following manner:

1. Learning disabilities syndrome--referred to the complex of disorders, not related to specific physical handicaps nor to retardation, which produced academic deficits. The disorders included the characteristics of hyperactivity, emotional lability, perceptual-motor impairments, general coordination deficits, disorders of attention, impulsivity, disorders of memory and thinking, disorders of speech and hearing, and equivocal neurological signs.

2. Learning disabled child or learning disabilities children--while not all of the characteristics noted for the learning disabilities syndrome were found in any one learning disabled child, one or more were observable in addition to a specific academic deficit.

3. Patterns of deficits--included the traits noted for the learning disabilities syndrome as well as more specific discrepancies isolated through psychodiagnostic procedures which assessed intra-individual differences.

4. Interpersonal needs--a situation or condition that was satisfied only through the attainment of a satisfactory relation with other people. The needs were defined as:

   a. Inclusion--the need to maintain and establish a satisfactory relation with people with respect to association.

b. Control--the need to maintain and establish a satisfactory relation with people with respect to control and power.

c. Affection--the need to maintain and to establish a satisfactory relation with people with respect to affection and love.

5. Levels of interpersonal needs--expressed behavior and wanted behavior levels entered into each interpersonal need.

a. Expressed--actions taken by a person.

b. Wanted--behaviors from other people that a person believed would satisfy an interpersonal need.

Hypotheses

The following hypotheses were the bases for the design and conduct of this study:

Hypothesis 1: There are statistically significant relationships between the learning disabled children's interpersonal needs as measured by the FIRO-BC scale and the Illinois Test of Psycholinguistics subtests.

Hypothesis 2: There are statistically significant relationships between the learning disabled children's interpersonal needs as measured by the FIRO-BC scale and the Wechsler Intelligence Scale for Children subtests, Verbal IQ, Performance IQ, and Full IQ.

Hypothesis 3: There are statistically significant relationships between the learning disabled children's interpersonal needs as measured by the FIRO-BC scale and the Wide Range Achievement Test subtests.

Hypothesis 4: There are statistically significant relationships between the learning disabled children's interpersonal needs as measured by the FIRO-BC scale and the Bender Gestalt Test

scales of Koppitz.

Hypothesis 5: The pattern of intercorrelations between learning parameters, aptitudes, and achievements is dependent upon interpersonal needs.

Hypothesis 6: Upon factor analysis,interpersonal need parameters will load on some factors which are independent of factors determined by cognitive ability tests used in diagnosing learning disabled children.

Hypothesis 7: Perceptual parameters from perceptual tasks load on a perceptual learning factor whereas parameters from non-perceptual tasks load on a non-perceptual factor.

Hypothesis 8: Interpersonal need parameters from relational needs load on a relational need factor more than on a cognitive ability factor.

The Subjects

The population for this study included all of the children currently enrolled in five learning disabilities classes in a special education center in a medium-sized town in South Central Oklahoma. The classes were for grades 2, 3, 4, 5, and 6. The children had been placed in the special classes according to criteria set up by the Special Education Section of the Oklahoma State Department of Education. The total school population from which these learning disabled children had been selected for remedial attention was 1,509 in grades 2, 3, 4, 5, and 6 of the town. The remedial classes for learning disabled children were limited to an enrollment of no more than 10 children per class by regulation of the Special Education Section of the Oklahoma State Department of Education.

Three of the children withdrew from the learning disabilities classes before the testing program was completed, and four of the children were unable to be tested due to lack of attendance

during the time span of the testing program. Because of new enrollments, a total of 54 children for whom there was complete test data were able to be included in the population for this study. The majority of these children were white. Thirteen of the children were Black, and four were Indian.

Diagnostic criteria for the children's eligibility in the learning disabilities classes had included administration of the Wechsler Intelligence Scale for Children (hereinafter referred to as the WISC), the Illinois Test of Psycholinguistic Abilities (hereinafter referred to as the ITPA), and the Bender Gestalt Test of Developmental Maturity for Young Children (hereinafter referred to as the Bender Gestalt) scales of Koppitz. The Wide Range Achievement Test (hereinafter referred to as the WRAT) had also been administered. All of the diagnostic tests were individually administered by State-licensed and State-employed psychometrists at the State-funded Regional Center located in the same South Central Oklahoma city. Although the intelligence of the children fell within the normal range of abilities, learning deficits which had retarded their academic progress had been identified by teacher observation of performance and test variables.

Socioeconomic data were incomplete for the children despite efforts to obtain information from the families. In those cases where the fathers lived in the home, terminal illness of the father (two cases) or the father's total disability (two cases) or the fact that the father-figure was in actuality a stepfather (eight cases) seemed to indicate that there had been a period of instability in the life-spaces of the children. In most cases where it was believed that a real father lived within the home, the father was employed in a low-income job or the income level seemed to shift frequently.

Three of the homes were considered to be upper-middle class by the community due to the business of the father, the educational levels of the parents, or the father's status as a re-

tired Armed Services officer. In at least one of the so-called upper-middle class homes the child was known to be adopted.

Nine of the mothers were known to receive welfare aid from the State's Department of Social and Rehabilitative Services. Eight of the mothers were employed as waitresses or nursing home aides, both of which were judged to be low-income jobs for those with little education. At least two children lived with stepmothers, and one child lived with a grandmother only. The four Indian children had been legally separated from their parents by the State and had been placed in a State-supported boarding home for Indian children. At least fifteen mothers worked outside of the home.

Procedures

Fifty-four children were administered the FIRO-BC questionnaire by a team of two who were employed in the school and were well known to the children. One was a white teacher of remedial reading with whom all of the children had had contact; the second team member was a Black, employed as the school secretary. The school administration believed it to be necessary to have representatives from both races present in order to minimize any discomfort some of the children might have experienced if only one race had been present. Due to the reading disabilities of the majority of the children, the test team read aloud the FIRO-BC questionnaire to each class grouping, allowing adequate time for consideration of the responses and maintaining an atmosphere conducive to thoughtful, honest responses. The children had before them, at their individual desks, the printed FIRO-BC questionnaire and marked their own responses.

With the title page only of the FIRO-BC exposed, the standard directions were read aloud as follows:

> These questions ask about how you feel or act with other children. There are no right or wrong answers; everybody has his own ideas.

> Try to tell how you really act, not how you wish you acted or how someone else wants you to act.
>
> Please put a number in every box after you read the directions at the top of each page.

The questionnaire was then opened to expose the inside two pages. Further standard directions were read aloud as follows:

> Place a number from one to six in the box in front of each question. For the questions on this page, the numbers mean: (1) most children; (2) many children; (3) some children; (4) a few children; (5) one or two children; (6) no children.

When the 22 single-statement items on the first page of the questionnaire had been read and answered, the following directions were read aloud:

> For the questions on this page, the numbers one to six mean: (1) almost all the time; (2) a lot of the time; (3) sometimes; (4) once in awhile; (5) almost never; (6) never.

Thirty-two single-statement items were then read and answered to complete the entire questionnaire. The complete process took no more than 20 minutes per class grouping.

The scoring of each FIRO-BC questionnaire was completed by the investigator. Each questionnaire was scored six separate times for the two levels of the three dimensions of interpersonal needs. Scoring templates obtained from the FIRO-BC publisher were used, and the scores for the two levels of each dimension were combined to provide the full score for each dimension. Accuracy in scoring was controlled by rescoring each fifth test. The scores were entered on the cover page of each questionnaire in the appropriate boxes.

Instrumentation

The FIRO-BC was developed by Schutz with the collaboration of Wood (1972) as an adaptation of the original FIRO-B scale for

the purpose of measuring the interpersonal needs of elementary school-age children. Although Schutz stated in The FIRO Scales Manual (1967) that technical data would be supplied upon request, no further data were available for the FIRO-BC according to a statement received from the publisher following a written request by the investigator of this study.

The FIRO-BC scales were self-report questionnaires which assessed children's needs for inclusion, control, and affection in interpersonal relationships, including the self-to-self relationship. Expressed and wanted levels for each of the three needs were assessed. The FIRO-BC scale investigated the aspects of behavior which the children directed towards others and, conversely, desired from others. The purpose of the FIRO-BC scale was to provide an instrument which would assist in facilitating such interaction behaviors through combining the scores of two or more individuals as well as to understand the individual's own pattern of needs.

The manner in which the self-report items were phrased was planned to be non-threatening so that feelings of privacy invasion would not be aroused. Items included such statements as: "I try to be friendly to other children" and "I take orders from other children." The vocabulary and the sentence structure seemed to be highly controlled for simplicity. "Friendships" and "something" were the longest words. "When a group of children gets together to do something, I like to join in with them" was the longest statement. The shortest statement was "I join clubs."

The total length of the questionnaire was 54 items. Because of this brevity, the needed time for oral administration in this study was 20 minutes. The six-point scale used nine single-statement items for the assessment of each need on both the expressed and wanted levels.

The Guttman technique for scale analysis was selected by Schutz (1967) for the development of the FIRO scales because it

had proven efficient in factor analysis and provided single digits for computational ease. Each item was keyed in such a way as to maximize the Guttman-scale property of the subscale to which it belonged. Using this technique, the FIRO-BC scales were constructed of items in regularly decreasing popularity so that the child would accept items sequentially to a given point and then reject the remainder. The construction was controlled so that reproducibility would be the reliability criterion. Therefore, at least 90 per cent of all responses could be predicted from the knowledge of the scale scores (pp. 1-5).

According to the published data for the FIRO-B (Schutz, 1967) scale, a high internal consistency of the keyed responses to the items in each subscale resulted. All test-retest correlations reported by Schutz for the FIRO-B scale were over .70 for one-month intervals (p. 5).

Summary

The FIRO-BC (Schutz and Wood,1972) was selected as a possible instrument for assessing the interpersonal relationships of learning disabled children. The children studied had all been diagnosed as learning disabled according to standardized instruments administered individually by certified psychometrists and were currently enrolled in learning disabilities classes. Although the FIRO-BC is a self-report questionnaire, a test administration team presented the contents orally in order to ensure that reading difficulties would not confound the results. As the 54 children in this study marked their own responses, it seemed that honest responses were obtained. Scores for the three interpersonal needs of inclusion, control, and affection were then obtained on the two levels of behavior, wanted and expressed. Combining the wanted and expressed scores produced full scores for the three needs.

CHAPTER III

DESIGN AND STATISTICAL ANALYSIS

Design

The University of Oklahoma's Merrick Computer Center's IBM 360/50 analyzed the data of this study, using the Florida University factor (hereinafter referred to as Fufactor) program ED501 (Guertin & Bailey, 1970, pp. 298-302). Essentially two analyses were made: a correlation analysis using the Pearson r and a factor analysis using the Varimax criterion of Kaiser. The correlation analysis provided information on the relations among the 32 variables used to identify the 54 learning disabled children of the study and their relation to the nine FIRO-BC variables. The extent of the relationships, including all of the subtests, was sought to increase the efficiency in the measurement involved in identifying learning disabled children. The correlations among the total 41 variables with communalities in the principal diagonal appear in Table 1.

The factor analysis emerged from a principal axes analysis which was chosen because it was an excellent way to obtain the initial factor structure of a correlation matrix. The principal axes matrix was then rotated to an orthogonal Varimax solution using the routine of Kaiser. Five orthogonal rotations were produced before the Fufactor program terminated. The resulting factor matrix permitted squaring factor loadings to express the amount of total test battery variance accounted for by the factor matrix (Guertin & Bailey, 1970, p. 99).

Variables in the unrotated factor matrix had moderate loadings on a great many factors. Therefore, the Varimax criter-

TABLE 1

CORRELATION MATRIX WITH COMMUNALITIES IN THE DIAGONAL[a]

Tests	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
1. WISC Information	(87)																																								
2. WISC Comprehension	72	(89)																																							
3. WISC Arithmetic	62	25	(91)																																						
4. WISC Similarities	53	44	34	(88)																																					
5. WISC Vocabulary	50	46	32	54	(97)																																				
6. WISC Digit Span	09	03	08	20	-05	(80)																																			
7. WISC Picture Completion	14	27	17	12	41	05	(97)																																		
8. WISC Picture Arrangement	20	32	32	28	27	07	22	(95)																																	
9. WISC Block Design	-02	22	22	03	07	10	23	23	(98)																																
10. WISC Object Assembly	00	01	20	06	18	-10	17	23	28	(97)																															
11. WISC Coding	06	17	17	-04	19	12	26	15	34	12	(98)																														
12. WISC Verbal IQ	76	80	63	73	76	12	27	33	15	13	19	(98)																													
13. WISC Performance IQ	18	45	60	17	32	08	63	61	64	59	58	36	(100)																												
14. WISC Full IQ	55	68	70	54	65	14	51	52	50	25	35	49	58	(79)																											
15. ITPA Auditory Reception	23	38	30	22	32	07	41	32	35	15	17	38	42	32	(77)																										
16. ITPA Auditory Association	20	29	24	32	21	16	34	29	18	16	-02	45	31	34	52	(93)																									
17. ITPA Verbal Expression	29	25	26	22	26	08	20	23	38	03	13	46	33	21	21	45	(94)																								
18. ITPA Auditory Memory	09	-08	15	10	18	42	15	-26	14	02	02	13	06	18	36	27	02	(89)																							
19. ITPA Grammatic Closure	32	30	37	32	44	08	35	25	09	10	11	42	32	45	52	73	36	25	(94)																						
20. ITPA Auditory Closure	13	10	13	17	24	16	25	12	23	06	07	24	27	21	26	55	29	17	43	(68)																					
21. ITPA Sound Blending	18	15	10	13	14	-19	14	19	11	34	-04	32	23	20	42	60	09	27	53	35	(85)																				
22. ITPA Visual Reception	08	42	17	25	25	-06	30	17	28	09	13	40	31	31	46	43	40	15	39	22	42	(89)																			
23. ITPA Visual Association	-03	22	07	02	22	06	28	33	22	09	09	15	28	20	40	43	39	07	22	31	25	58	(87)																		
24. ITPA Manual Expression	04	25	19	17	27	-06	27	10	01	-13	14	20	14	16	37	32	06	15	39	23	35	42	24	(85)																	
25. ITPA Visual Closure	05	10	11	18	17	26	34	34	21	09	35	14	43	30	17	34	20	-08	28	45	09	27	23	-02	(80)																
26. ITPA Visual Memory	-05	-15	-02	-05	22	-01	00	15	11	42	09	02	26	-03	05	37	12	06	01	19	31	27	27	-13	15	(87)															
27. Bender-Gestalt (Koppitz)	13	03	-11	05	02	-03	-11	-09	-25	-07	01	05	-15	00	04	-13	-15	-08	08	-13	03	-27	-07	-26	-13	-04	(97)														
28. Bender-Gestalt Emotional	03	05	-06	-01	15	-19	01	18	-05	01	-04	13	06	12	06	-20	-07	-08	-05	-24	-14	-17	04	-18	-17	02	31	(84)													
29. Bender-Gestalt Neurogenic	06	-04	-19	01	-02	-07	-11	-21	-38	-13	-06	-05	-20	-15	-02	-15	-21	-12	07	-10	01	-25	-15	-14	-16	-10	91	18	(96)												
30. PIRC-RC Inclusion-expressed	-02	38	-21	12	01	-10	-06	-12	-01	-09	-17	-06	-11	-12	-08	-09	07	07	-07	-04	-12	06	-04	06	-17	-19	11	-04	07	(98)											
31. PIRC-RI Inclusion-wanted	-33	-07	-11	-24	-43	-11	-38	-37	02	02	-09	-24	-26	-22	-38	-23	-06	-01	-17	-32	-17	-30	-34	-17	-29	-02	11	15	10	09	(00)										
32. PIRC-CC Control-expressed	01	16	03	18	24	-14	10	20	-08	-05	-03	24	11	04	29	18	19	-16	14	25	08	09	02	11	23	02	05	05	-01	09	-21	(00)									
33. PIRC-CI Control-wanted	02	10	21	04	17	02	30	05	04	-05	10	09	15	15	16	14	-15	23	25	21	16	18	12	22	02	-04	07	-19	01	31	-06	23	(98)								
34. PIRC-EC Affection-expressed	07	25	31	05	01	-06	-08	09	27	05	30	16	18	28	17	-01	-03	07	17	-18	11	-01	-06	09	-13	-25	09	15	04	07	39	-24	05	(00)							
35. PIRC-EI Affection-wanted	13	-01	06	06	14	-04	21	01	06	25	02	26	18	02	14	26	06	14	10	23	25	33	42	03	05	25	-03	04	-03	15	-15	10	21	-22	(00)						
36. PIRC-SC Full Inclusion	03	24	00	09	17	-06	17	-01	03	-03	-06	04	05	04	07	02	-03	17	14	14	02	14	10	15	-09	-15	10	-09	04	76	03	17	31	12	24	(99)					
37. PIRC-SI Full Control	-15	12	10	-14	-28	-11	-28	-20	18	05	11	-07	-06	01	-14	-15	-05	05	-01	-30	-04	-19	-26	-07	-26	-12	12	17	09	12	86	-31	01	79	-21	09	(00)				
38. PIRC-SC Full Affection	29	28	26	31	27	-13	25	16	-04	13	-02	35	19	02	28	36	20	-03	18	33	22	28	29	09	19	16	01	08	-02	15	-31	76	28	-31	72	28	-36	(00)			
39. WRAT Reading	75	77	65	71	72	35	26	29	30	15	24	58	34	38	35	43	25	32	48	26	39	28	12	17	19	04	-04	-07	-10	-14	-23	22	35	24	11	13	-02	22	(96)		
40. WRAT Arithmetic	51	26	56	37	40	25	31	31	43	16	25	55	45	46	42	54	23	43	45	29	34	28	23	13	24	07	03	12	-11	01	-23	15	35	29	12	21	03	17	87	(95)	
41. WRAT Spelling	71	23	68	56	70	02	20	22	39	32	25	47	42	47	24	20	21	25	28	09	28	22	09	05	13	-04	-03	15	-15	09	-06	10	25	34	11	20	16	12	71	73	(81)

[a]Decimals omitted and .05 level of significance or beyond underlined.

ion permitted rotation to continue on an orthogonal basis until a minimum number of tests contributed to each factor, and the variance accounted for approached the Fufactor program's desired 95-98 per cent together with the simplest possible structure (Guertin & Bailey, 1970, p. 121). In this study, such a double parsimony entailed the five orthogonal rotations which resulted in 16 factors and an accountability for 91 per cent of all common variance and 84 per cent of the total score variance. The Varimax rotated factors appear in Table 2.

Statistical Analysis

Correlation Analysis: Forty-one variables were used in the correlation analysis. With 52 degrees of freedom, an r of .354 was statistically significant at the .01 level, while an r of .273 was statistically significant at the .05 level. These correlations are exhibited in Table 1 with the statistically significant correlations underlined.

In the behavioral sciences there seems to be concensus that a more meaningful r is no less than .40. Correlations of .40 to .70 can be considered moderate while correlations of .70 to 1.00 (+ or -) may be of high importance (Amos, Brown, and Mink, 1965, p. 64). Using this standard, 16 correlations in Table 1 were not only statistically significant, but of sufficiently high meaningfulness that they merited listing as follows:

WISC Information with WISC Verbal IQ (r=.76)

WISC Similarities with WISC Verbal IQ (r=.73)

WISC Vocabulary with WISC Verbal IQ (r=.73)

ITPA Auditory Association with ITPA Grammatic Closure (r=.73)

FIRO-BC Inclusion-expressed with FIRO-BC Full Inclusion (r=.76)

FIRO-BC Full Inclusion with FIRO-BC Control-wanted (r=.81)

FIRO-BC Full Control with FIRO-BC Inclusion-wanted (r=.86)

TABLE 2

ORTHOGONAL FACTORS[a]

VARIABLES	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	h^2
1. WISC Information	52	-16	-12	-09	-07	-02	-12	14	10	06	62	05	-08	06	16	-04	79
2. WISC Comprehension	-10	13	18	27	09	25	03	-01	03	46	54	-13	-02	24	09	-15	80
3. WISC Arithmetic	73	11	-02	-13	-17	10	00	-12	-06	05	31	09	-12	19	17	-06	81
4. WISC Similarities	19	-07	-06	07	-04	16	12	02	09	-01	77	15	27	12	-10	-12	82
5. WISC Vocabulary	18	-22	18	08	23	48	06	01	21	04	58	23	-07	-04	14	16	89
6. WISC Digit Span	13	-08	66	-06	-10	-09	-10	-03	-12	03	10	-01	82	03	03	-01	76
7. WISC Picture Completion	05	-25	21	12	08	25	12	-08	06	11	05	11	06	07	77	-05	86
8. WISC Picture Arrangement	22	-15	03	-03	15	13	13	-10	06	07	18	-04	03	83	12	05	89
9. WISC Block Design	35	13	29	02	02	08	35	-25	-10	56	-19	11	10	12	04	-13	83
10. WISC Object Assembly	14	06	02	-08	-03	04	86	-06	-03	-04	04	13	-11	09	13	25	89
11. WISC Coding	18	08	90	-09	-06	00	03	01	-01	04	02	01	03	03	17	03	90
12. WISC Verbal IQ	45	-02	07	-05	07	22	-03	03	08	18	79	11	-02	04	13	04	97
13. WISC Performance IQ	27	-04	44	01	06	16	49	-15	03	24	07	09	03	36	45	05	97
14. WISC Full IQ	30	00	26	01	12	22	18	03	-06	08	32	-16	12	11	47	-02	64
15. ITPA Auditory Reception	25	-12	09	-03	19	67	11	06	14	09	05	06	10	05	16	-14	68
16. ITPA Auditory Association	20	-01	-16	-05	-19	69	01	-05	18	25	19	08	18	10	18	33	88
17. ITPA Verbal Expression	14	01	-02	-05	-08	13	-07	-10	12	83	25	00	00	02	11	12	86
18. ITPA Auditory Memory	36	02	-10	12	11	31	03	-10	-17	-09	-06	07	50	-43	13	03	78
19. ITPA Grammatic Closure	30	10	-11	-01	-18	64	-04	18	12	14	18	-08	03	06	39	05	82
20. ITPA Auditory Closure	10	-19	02	05	-30	39	03	-02	26	21	01	11	23	02	18	14	52
21. ITPA Sound Blending	24	01	-10	-04	-13	72	30	07	01	-09	14	09	-11	01	-08	18	79
22. ITPA Visual Reception	04	-16	21	15	00	65	-03	-24	-06	31	21	16	-06	01	-05	24	81
23. ITPA Visual Association	02	-24	12	07	17	43	-05	-05	-14	42	-15	43	05	28	09	12	81
24. ITPA Manual Expression	00	-03	12	11	-11	34	-21	-21	-03	-10	10	00	-13	01	11	-24	66
25. ITPA Visual Closure	00	-15	33	-10	-25	12	08	03	31	21	04	-07	36	31	18	16	66
26. ITPA Visual Memory	-01	-07	05	-12	04	13	24	24	01	05	-09	16	00	05	-04	81	79
27. Bender-Gestalt (Koppitz)	02	06	01	08	16	-07	-01	95	01	-04	04	-01	-01	00	-02	01	95
28. Bender-Gestalt Emotional	04	15	-06	-10	80	-12	-01	19	08	-02	05	05	-09	11	10	04	77
29. Bender-Gestalt Neurogenic	-11	03	-01	02	02	00	-07	94	-02	-11	03	00	-05	-08	-04	-06	93
30. FIRO-BC Inclusion-expressed	-14	04	-13	84	05	-07	09	05	03	17	13	-01	-01	-11	-16	-15	88
31. FIRO-BC Inclusion-wanted	-14	88	-12	03	01	-24	-01	03	-08	03	-12	-02	-04	-18	-06	12	95
32. FIRO-BC Control-expressed	11	-21	00	11	06	09	-06	01	91	03	11	01	13	07	02	-03	94
33. FIRO-BC Control-wanted	34	02	10	72	-20	15	-17	03	11	-25	-13	15	-01	07	25	09	92
34. FIRO-BC Affection-expressed	29	69	25	05	15	17	06	05	-20	-03	06	-14	-06	15	-07	-29	87
35. FIRO-BC Affection-wanted	01	-10	-01	15	00	12	15	-01	09	00	18	91	03	-07	02	14	96
36. FIRO-BC Full Inclusion	12	06	-03	95	-05	06	-07	04	08	-04	00	13	02	01	11	-04	97
37. FIRO-BC Full Control	07	95	07	07	09	-05	04	05	-15	02	-06	-10	-06	-06	-08	-07	99
38. FIRO-BC Full Affection	07	-21	-02	16	05	14	04	00	69	03	21	60	-09	02	04	07	99
39. WRAT Reading	87	-02	10	02	-08	24	01	-02	13	02	17	01	18	04	-03	05	91
40. WRAT Arithmetic	83	-02	12	14	14	23	08	01	06	12	11	00	25	06	08	04	90
41. WRAT Spelling	70	08	16	17	16	08	27	-07	04	10	16	-04	01	-03	02	-02	71

[a]Decimals omitted and significant loadings .40+ underlined.

FIRO-BC Control-expressed with FIRO-BC Full Affection (r=.76)

FIRO-BC Full Control with FIRO-BC Affection-expressed (r=.79)

FIRO-BC Full Affection with FIRO-BC Affection-wanted (r=.72)

WRAT Reading with WRAT Arithmetic (r=.87)

WRAT Reading with WRAT Spelling (r=.75)

WRAT Arithmetic with WRAT Spelling (r=.75)

Bender Gestalt Developmental with Bender Gestalt Neurogenic (r=.92)

The intercorrelations among the WISC subtests, those of the ITPA subtests, among the WRAT subtests, and the two Bender Gestalt scales strongly indicated that common factors were measured in many instances. Other than the FIRO-BC Full Inclusion scale, the Bender Gestalt Emotional scale of Koppitz was the only variable which did not correlate at least statistically significantly with any other variable.

FIRO-BC scales correlated at the .01 level of significance with the WISC and ITPA variables. Additional FIRO-BC scales correlated significantly at the .05 level of significance with ITPA, WRAT, and WISC variables. Both verbal abilities and psycholinguistic processes correlated significantly with FIRO-BC variables as well as with achievement variables. The Affection scales provided the greatest number of significant correlations; the Inclusion scales, the second greatest; and the Control scales, the least number of significant correlations with ITPA, WISC, and WRAT variables.

Negative correlations were produced by the Inclusion scales and by the Control scales of the FIRO-BC at the .05 level of significance or beyond. The Affection scales produced no statistically significant negative correlations with ITPA, WISC, or WRAT variables.

No significant correlations with the three scales of the Bender Gestalt were produced by the FIRO-BC variables. Aside from

possible common emotional content, because the Bender Gestalt performance tasks involved no verbal abilities as did the FIRO-BC scales the lack of significant correlations seemed reasonable. Many subtests of the ITPA and the WISC as well as the WRAT Reading and Spelling subtests involved verbal abilities. Therefore, it was assumed that there should be significant correlations between the FIRO-BC scales and the ITPA, WISC, and WRAT subtests because of the common verbal abilities requisite for performance on these instruments.

Rotated Principal Axes Factor Analysis: The factors which emerged from the orthogonal rotations of the principal axes analysis of the correlation matrix shown in Table 1 numbered 16. According to Fruchter (1954), the basic assumptions of factor analysis are that a battery of correlated variables has common factors running through so that the scores of individuals can be represented more economically in terms of factors and so that the correlation between two variables can be accounted for by the nature and extent of their factor loadings (pp. 44-50).

Sixteen factors with latent values of 1.34 or greater emerged from the final and fifth rotation and accounted for 91 per cent of all common variance and 84 per cent of the total score variance. The factors and the loadings associated with the variables of the analysis are presented in Table 3. The variables which loaded .40 and beyond were considered to be the major components of the factors.

Factor I seemed to be a schooling element which received significant loadings from the WRAT Reading, Arithmetic, and Spelling subtests, and from the WISC Arithmetic, Information, and Verbal IQ variables. All of the high loadings involved academics kinds of training normally obtained through school attendance and through reading materials. Table 3 indicated that this factor accounted for 10 per cent of the total extracted variance.

TABLE 3

FACTORS AND LOADINGS OF .40+

Factor	Variables Included	Loading	Percentage of Total Extracted Variance
I	WRAT Reading	.87	10
	WRAT Arithmetic	.83	
	WISC Arithmetic	.73	
	WRAT Spelling	.70	
	WISC Information	.52	
	WISC Verbal IQ	.45	
II	FIRO-BC Full Control	.95	7
	FIRO-BC Inclusion-wanted	.88	
	FIRO-BC Affection-expressed	.69	
III	WISC Coding	.50	4
	WISC Performance IQ	.44	
IV	FIRO-BC Full Inclusion	.95	6
	FIRO-BC Inclusion-expressed	.84	
	FIRO-BC Control-wanted	.72	
V	Bender Gestalt Emotional	.80	3
VI	ITPA Sound Blending	.72	10
	ITPA Auditory Association	.69	
	ITPA Auditory Reception	.67	
	ITPA Visual Reception	.65	
	ITPA Grammatic Closure	.64	
	ITPA Manual Reception	.64	
	WISC Vocabulary	.48	
	ITPA Visual Association	.43	
VII	WISC Object Assembly	.86	4
	WISC Performance IQ	.49	
VIII	Bender-Gestalt (Koppitz)	.95	5
	Bender-Gestalt Neurogenic	.94	
IX	FIRO-BC Control-expressed	.91	4
	FIRO-BC Full Affection	.69	
X	ITPA Verbal Expression	.83	5
	WISC Block Design	.56	
	WISC Comprehension	.46	
	ITPA Visual Association	.42	
XI	WISC Verbal IQ	.79	7
	WISC Similarities	.77	
	WISC Information	.62	
	WISC Vocabulary	.58	
	WISC Comprehension	.54	
XII	FIRO-BC Affection-wanted	.91	4
	FIRO-BC Full Affection	.60	
	ITPA Visual Association	.43	
XIII	WISC Digit Span	.82	4
	ITPA Auditory Memory	.50	
XIV	WISC Picture Arrangement	.83	4
	ITPA Auditory Memory	-.43	
XV	WISC Picture Completion	.77	4
	WISC Full IQ	.47	
	WISC Performance IQ	.45	
XVI	ITPA Visual Memory	.81	3

Factor II received significant loadings from the FIRO-BC Full Control, Inclusion-wanted, and Affection-expressed variables. Such loadings suggested that this factor represented interpersonal needs as shown in Table 3. The total extracted variance which Factor II accounted for was seven per cent.

Factor III, as indicated in Table 3, received significant loadings from only two variables, the WISC Coding and the Performance IQ measures. Although visual-motor elements were involved in the coding and other subtests which composed the Performance IQ of the WISC, the speeded element predominated together with the ability to discover a pattern or rule. The factor may have represented cognitive pace. It accounted for four per cent of the total extracted variance.

Factor IV received significant loadings from the FIRO-BC scales for Full Inclusion, Inclusion-expressed, and Control-wanted measures. This suggested a second personality factor of interpersonal needs. Inclusion and Control scales involved interaction with others and control by others. Factor IV accounted for six per cent of the total extracted variance.

Factor V received only one significant loading, that of the Bender Gestalt Emotional scale of Koppitz. This scale assessed emotional disturbance through the reproduction of a series of figures which involved not only drawing the figures but also such behavioral aspects as the logical sequencing of the reproduced figures on a plain sheet of paper, the use of a fine line or reinforced lines, the substitution of dashes for circles, increasingly forming larger sizes of the figures, and redrawing a figure. In so far as the Bender-Gestalt Emotional scale is valid, Factor V represented possible behavior disorders. It accounted for three per cent of the total extracted variance.

Factor VI received significant loadings from the ITPA subtests of Sound Blending, Auditory Association, Auditory Reception,

Grammatic Closure, Manual Reception, and Visual Association as well as the WISC Vocabulary subtest. Auditory integrity and verbal abilities were involved in the majority of the variables. The Sound Blending subtest ascertained the ability to perceptually integrate isolated sounds into whole words. The Auditory Association subtest assessed the ability to relate concepts presented orally; the Auditory Reception subtest assessed the ability to understand what was said. Visual Reception was a measure of the ability to derive meaning from visually presented material. In Grammatic Closure the tasks presented assessed linguistic constructs through the ability to supply missing elements in incomplete sentences. In the Manual Expression subtest ideas were described through gestures, and in the Visual Expression subtest concepts were presented through pictures. The WISC Vocabulary subtest assessed the child's ability to describe selected words of increasing difficulty, presented orally. The factor accounted for 10 per cent of the total extracted variance. It may have represented the psycholinguistic processes.

Factor VII was identified as a perceptual speed factor. It received high loadings from the WISC Object Assembly and Performance IQ variables. The WISC Object Assembly subtest particularly required the quick manipulation and identification of simple perceptual materials and was one of the subtests in the Performance IQ variable. The Performance IQ variable assessed a variety of perceptual-motor kinds of abilities. Factor VII accounted for four per cent of the total extracted variance.

Factor VIII received high loadings from the Bender Gestalt Developmental scale of Koppitz and the Neurogenic scale of Koppitz. Both of these scales involved normal maturation of both visual-perceptual and motoric expression abilities as measured by the reproduction of a series of nine figures presented sequentially. This suggested a perceptual integration factor. Factor VIII accounted for five per cent of the total extracted variance.

Factor IX received high loadings from two FIRO-BC scales, the Control-expressed and the Full Affection variables. These interpersonal needs involved power and love in maintaining satisfactory psychological relationships with others. This was the third factor identified by the FIRO-BC scales only and suggested a personality factor. Factor IX accounted for four per cent of the total extracted variance.

Factor X, as shown in Table 3, received significant loadings from the ITPA Verbal Expression and Visual Association subtests and from the WISC Block Design and Comprehension subtests. The ITPA Verbal Expression subtest assessed the ability to express concepts verbally, and the Visual Association subtest assessed the ability to relate concepts visually. The WISC Block Design subtest involved the reproduction of a visual design through the manipulation of blocks, and the Comprehension subtest assessed ability to make judgments about social situations. Insight on both perceptual and conceptual levels was involved in these subtests which suggested an inductive factor. Factor X accounted for five per cent of the total extracted variance.

Factor XI received significant loadings from the WISC Verbal IQ, Similarities, Information, Vocabulary, and Comprehension variables. The five subtests composing the WISC Verbal IQ involved the use of oral language for administration and the responses of the subjects. Similarities, Information, Vocabulary, and Comprehension all composed part of the WISC Verbal IQ. Similarities assessed the ability to detect analogies, Information assessed general knowledge while Vocabulary involved the ability to define words of increasing difficulty. Comprehension assessed the ability to make social judgments. Thus cognitive as well as general verbal abilities were assessed in these variables. General reasoning ability was an important component of this factor. The factor accounted for seven per cent of the total extracted variance.

Factor XII, as shown by Table 3, received significant loadings from two FIRO-BC scales, Affection-wanted and Full

Affection, as well as from the ITPA Visual Association subtest. This suggested a perceptual-personality factor as the ITPA variable measured the eduction of relationships through the visual-perceptual processes, and the FIRO-BC Affection variables assessed positive behaviors toward others. Factor XII accounted for four per cent of the total extracted variance.

Factor XIII received significant loadings from the WISC Digit Span and the ITPA Auditory Memory subtests. Both subtests involved short-term memory ability, as measured by the verbal repetition of a series of digits which were presented orally. Therefore, this factor suggested a rote memory ability. It accounted for four per cent of the total extracted variance.

Factor XIV received high loadings from the WISC Picture Arrangement and, negatively, the ITPA Auditory Memory variables. Picture Arrangement of the WISC involved the ability to visualize a cause-effect sequence, and Auditory Memory involved the repetition from memory of a series of digits of increasing length in the designated order. Factor XIV suggested a visual sequencing component. As was shown by Table 3, it accounted for four per cent of the total extracted variance.

Factor XV received significant loadings from the WISC Picture Completion, Full IQ, and Performance IQ variables. The ability to visualize a whole and to analyze were involved in the Picture Completion variable, thus measuring perceptual-closure strengths. The Full IQ assessed general intelligence while the Performance IQ involved tasks presented visually to which motor responses were made. Thus perceptual, cognitive, and motor abilities were components of Factor XV. The factor accounted for four per cent of the total extracted variance.

Factor XVI, as was shown by Table 3, received a high loading from the ITPA Visual Memory subtest only. This test involved the ability to produce sequences of nonmeaningful figures of increasing length from memory. Therefore, this factor was in-

terpreted as representing a visual memory ability. Factor XVI accounted for three per cent of the total extracted variance.

The three factors which seemed to represent personality constructs as assessed by the FIRO-BC scales contributed 17 per cent of the total extracted variance. These factors were II, IV, and IX. A fourth factor received its major loadings from FIRO-BC scales and contributed an additional four per cent to the total extracted variance. This was Factor XII which, however, according to the previously described criterion received a significant loading from another variable. Therefore, the personality constructs assessed by FIRO-BC only contributed one-fifth of the total extracted variance.

Summary

The correlation matrix for the 41 variables in this study was subjected to a principal axes factor analysis, which was then rotated according to the Varimax routine of Kaiser. A Fufactor program made use of the University of Oklahoma's IBM 360/50 computer to analyze the data. The 16 resulting factors produced possible cognitive, perceptual, psycholinguistic, and personality types of basic constructs. In general, the FIRO-BC interpersonal needs variables loaded on separate factors from the other variables in this study. These personality factors contributed 17 per cent of the total extracted variance.

CHAPTER IV

CONCLUSIONS AND DISCUSSION

Conclusions

Eight hypotheses were formulated to assess the values of the FIRO-BC scales with their variables of interpersonal needs in the diagnosis of learning disabled children. The results of the statistical analysis indicated the following:

Hypothesis 1 made predictions about the interaction between the ITPA subtests and the FIRO-BC scales, which were partially supported by the FIRO-BC correlations with ITPA variables. Statistically significant correlations at the .05 level of significance or beyond were produced with the ITPA Auditory Reception, Auditory Closure, Visual Reception, Visual Association, Auditory Association, and Visual Closure subtests. The FIRO-BC scales which correlated most frequently at the .05 level of significance or beyond with those ITPA subtests were the Inclusion-wanted and the Full Affection scales.

Hypothesis 2 stated that there would be statistically significant relationships between the learning disabled children's interpersonal needs as measured by the FIRO-BC scales and the WISC subtests. This hypothesis was partially supported by significant correlations at the .05 level of significance or beyond which were produced by the FIRO-BC scales with 11 of the WISC variables. The majority of the significant correlations involved the FIRO-BC scales for Inclusion-wanted, Affection-expressed, and Full Affection variables.

Hypothesis 3 involved relationships among the FIRO-BC scales and the three Bender Gestalt scales of Koppitz. As no

statistically significant correlations were produced, Hypothesis 3 was not supported by the statistical analysis of this study.

Hypothesis 4 was partially supported by the FIRO-BC correlations with the WRAT variables. Statistically significant correlations were produced at the .05 level of significance. The FIRO-BC scales involved in these correlations were the Control-wanted and the Affection-expressed scales.

Hypothesis 5 was only slightly supported by the correlation matrix in this study. From Table I it was evident that learning parameters, aptitudes, and achievements were not always dependent upon interpersonal needs as measured by the FIRO-BC scales. Other than expected correlations at the .05 level of significance or beyond with verbal kinds of tasks, no particular pattern of correlations between learning parameters, aptitudes, and achievements with interpersonal needs was observed.

Hypothesis 6 was supported by the factorial design of this study. Three factors loaded significantly on FIRO-BC variables independent of factors determined by cognitive ability tests used in diagnosing learning disabled children.

Hypothesis 7 was not supported. The hypothesis had indicated that perceptual and non-perceptual tasks would load on separate factors. Factor XII received significant loadings from both FIRO-BC variables and a perceptual task subtest of the ITPA.

Hypothesis 8 was supported by the factor analysis of this study's statistical design. Factors II, IV, and IX received significant loadings from FIRO-BC variables only. Therefore, interpersonal need parameters from relational needs did load on a relational need factor more than on a cognitive ability factor.

Discussion

The variables entering into the learning disabilities syndrome would appear to form many patterns, not just one, judging

from the kinds of significant correlations which were produced in this study. The total number of correlation coefficients in the correlation matrix shown in Table 1 were 820, of which 247 or 30 per cent were significant at the .05 level of significance. In such a large number of correlation coefficients in the matrix, the percentage of significant correlations indicated that the degree of meaningful relationships between the various diagnostic variables and the interpersonal relationship variables was, in fact, rather small. Random fluctuation would ordinarily produce approximately half of the large number of correlations involved in the matrix as significant at the .05 level of significance. This, of course, makes it difficult to structure remediation for class groupings in the schools and difficult to even identify the syndrome within individual children.

The FIRO-BC variables seemed to measure factors which generally differed from the kinds of cognitive, perceptual, emotional, motor, and schooling elements of the majority of the factors. Thus, the FIRO-BC scales probably assessed personality elements which were not integral to the learning parameters in general. The extracted personality factors of the FIRO-BC scales did contribute an appreciable amount of variance quantitatively to the understanding of the total variability between individuals when considered together.

The findings further indicated that there were negative interpersonal influences on the cognitive, perceptual, and schooling variables as demonstrated by measurement of the control and inclusion needs. Positive links were suggested by the affection needs with perceptual processes. This, however, was only weakly indicated. Just one perceptual measure, the ITPA Visual Association subtest, clustered factorially with the affection needs, thus indicating the need learning disabled children have for reassurance when completing tasks.

The negative correlations which were produced by the

FIRO-BC Inclusion scales and Control scales with various cognitive and perceptual kinds of factors were particularly striking in the light of the lack of such negative correlations by the Affection scales. It might be inferred that the interpersonal needs to control others and to be included within the group were of such paramount importance that they both dominated and distorted the cognitive-perceptual processes. Therefore, interaction, power, and love as assessed by the FIRO-BC scales were forces which affected aptitude and achievement parameters in learning disabled children.

The factorial constructs of the FIRO-BC did not separate into the dimensions and the levels of behavior postulated by Schutz (1966). Four constructs were delineated in this study's statistical design, one of which was related factorially to perceptual processes in the learning disabled children. It would, however, be imprudent to draw conclusions from the relation of two of the FIRO-BC Affection variables to the perceptual variable because the amount of extracted variance in that one factor was minimal. No factorial relationship was found to other variables in the diagnostic battery.

CHAPTER V

SUMMARY AND RECOMMENDATIONS

Summary

The purpose of this study was to ascertain if variables of interpersonal relationship needs would extend the parameters of present knowledge concerning learning disabled children. Fifty-four learning disabled children in grades 2, 3, 4, 5, and 6 who were currently enrolled in special classes in a South Central Oklahoma community were administered the FIRO-BC (Schutz & Wood, 1972) self-report questionnaire by a team of two examiners. The administration was oral in order to ensure that the widespread reading difficulties in the group would not confound the results. Eight hypotheses were formulated concerning the interpersonal needs variables of inclusion, control, and affection as assessed by the FIRO-BC scales and the diagnostic test variables used to identify the children. The diagnostic test battery included the WISC, the ITPA, the Bender Gestalt scales of Koppitz, and the WRAT.

The statistical design of this study included a 41 x 41 correlation matrix which was subjected to a principal axes analysis. The principal axes factors were then rotated orthogonally according to the Varimax criterion of Kaiser. Sixteen factors with latent values of 1.34 or greater emerged from the final rotation which accounted for 84 per cent of the total score variance.

The findings indicated that the FIRO-BC scales measured factors which generally differed from the kinds of cognitive, perceptual, emotional, motor, and schooling elements of the majority of the factors. Three factors received significant loadings

from FIRO-BC variables only while one factor received significant loadings from both FIRO-BC Affection scales and a perceptual measure. The three FIRO-BC factors contributed 17 per cent to the total extracted variance. It could be assumed that they did delineate personality constructs.

The factorial presence of a perceptual element with the FIRO-BC Affection variables and the indications of negative Control and Inclusion relationships with cognitive, perceptual, and schooling variables suggested the usefulness of further investigations with these interpersonal needs variables. The FIRO-BC scales did offer fresh insight into the learning disabilities syndrome. The Affection need had a positive relationship to the learning, aptitude, and achievement parameters of the learning disabled children of this study.

Both the large number of factors and the number of correlation coefficients significant at the .05 level of significance or beyond revealed that multiple patterns of the learning disabilities syndrome were prevalent in the children studied. Therefore, remedial procedures should be approached on an individualized basis.

Recommendations

On the basis of the findings of this study, the following recommendations for future research are suggested:

1. Because this study dealt with a limited population of learning disabled children, it is recommended that further studies using the FIRO-BC with matched groups of learning disabled and normal children be made.

2. The factorial validity of the dimensions and levels of the FIRO-BC needs to be explored further by using large numbers of children to assure stability of factors.

3. The present study investigated the FIRO-BC in its relationships to psychological variables obtained from the standard diagnostic battery used to identify learning disabled children. Research is clearly indicated to investigate the relationships of the FIRO-BC with other data, such as teacher and parent ratings of the learning disabled children and the learning disabled children's own ratings on various self-concept scales.

4. Research studies have thus far not been made with the interpersonal variables of learning disabled children and significant adults in their environment on a quantifiable and scientific basis.

5. The relationships between the FIRO-BC Affection scales and perceptual processes should be explored further, particularly on an experimental basis.

6. The relationships between the FIRO-BC Control and Inclusion scales and cognitive-perceptual variables should be explored further on a controlled experimental basis.

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APPENDIX

TABLE 4

WISC SCORES FOR SUBJECTS GRADES 2 - 6

	Subject ID	Inform.	Compr.	Arith.	Simil.	Vocab.	Digit Span	Picture Compl.	Picture Arr.	Block Design	Object Assembly	Coding	Verbal IQ	Perform. IQ	Full IQ
(Grade 2)	1	9	9	8	10	9	6	7	8	9	14	6	94	92	92
	2	8	13	10	7	8	7	8	12	9	7	10	95	94	94
	3	10	16	11	15	11	10	12	16	13	8	10	116	113	116
	4	5	12	10	3	5	5	14	10	13	12	10	81	113	96
	5	10	16	11	15	11	10	12	16	13	8	10	92	117	104
	6	5	7	6	7	7	11	14	9	11	6	12	77	103	88
	7	10	12	14	10	11	8	13	14	12	12	10	109	115	113
(Grade 3)	8	7	6	6	10	11	14	14	5	7	9	13	94	97	95
	9	6	10	6	5	6	8	14	9	11	8	6	77	97	85
	10	6	9	6	7	5	5	7	4	13	4	14	79	89	82
	11	9	7	9	13	11	14	12	12	10	11	8	99	104	101
	12	7	11	9	11	12	7	8	8	12	19	11	100	111	106
	13	9	13	9	11	11	10	14	7	14	9	10	104	106	103
	14	7	11	6	13	12	5	14	7	11	6	7	99	93	96
	15	11	6	10	12	7	7	9	12	13	11	4	95	99	96
	16	5	6	5	8	7	11	6	6	8	9	11	76	86	79
	17	6	8	8	7	7	4	11	7	10	10	9	82	96	88
	18	9	7	9	12	7	6	12	12	7	13	7	92	101	96
	19	8	9	5	10	5	10	13	12	10	13	10	84	111	96
	20	4	7	6	9	8	7	12	10	12	9	8	80	89	83
	21	9	10	7	13	11	5	7	7	8	7	7	100	80	90
	22	6	11	8	12	9	7	16	8	10	11	7	95	103	99
	23	6	9	7	12	8	5	4	8	6	9	4	90	74	80
	24	12	8	13	14	12	7	15	9	9	8	11	111	103	108
	25	6	3	9	4	6	9	10	7	14	15	9	72	107	88

WISC SCORES FOR SUBJECTS GRADES 2 - 6

	Subject ID	Inform.	Compr.	Arith.	Simil.	Vocab.	Digit Span	Picture Compl.	Picture Arr.	Block Design	Object Assembly	Coding	Verbal IQ	Perform. IQ	Full IQ
(Grade 4)	26	12	7	10	11	8	8	8	5	4	6	5	97	69	83
	27	4	10	4	8	9	5	10	3	9	8	5	81	82	80
	28	9	11	10	13	8	9	7	7	11	6	5	101	79	89
	29	7	8	6	10	8	7	15	9	8	8	6	86	94	89
	30	10	8	12	10	12	9	15	12	8	9	12	103	108	106
	31	5	7	6	8	7	6	6	12	12	10	12	86	103	93
	32	4	7	9	7	7	6	11	10	9	9	9	80	97	87
	33	10	12	10	12	13	7	10	9	10	6	10	109	93	101
(Grade 5)	34	6	5	7	11	3	12	6	9	5	7	6	77	76	75
	35	5	10	6	7	9	5	13	7	7	11	7	84	92	86
	36	9	6	5	10	11	6	10	7	6	11	11	89	93	90
	37	6	11	5	11	8	8	10	7	7	8	6	89	83	85
	38	8	3	11	8	5	7	9	5	7	7	8	81	80	79
	39	5	9	7	13	12	6	14	11	11	12	6	82	106	93
	40	8	7	7	7	11	6	9	9	9	5	7	87	85	85
	41	8	10	7	11	11	6	9	11	5	9	7	96	92	93
	42	7	3	8	4	3	5	5	5	10	6	4	69	72	69
	43	8	9	9	10	10	6	6	10	10	10	7	95	90	92
(Grade 6)	44	5	10	5	11	4	20	6	7	11	6	7	81	82	80
	45	5	5	6	4	6	5	7	10	8	10	6	70	87	76
	46	8	10	6	7	6	7	10	6	8	4	8	84	80	80
	47	9	8	5	8	10	9	13	11	9	8	9	87	100	93
	48	7	9	8	11	5	8	7	8	5	9	9	87	83	84
	49	10	12	13	13	11	11	13	8	16	14	10	111	115	115
	50	4	5	3	6	3	5	9	8	8	7	6	65	83	71

WISC SCORES FOR SUBJECTS GRADES 2 - 6

	Subject ID	Inform.	Compr.	Arith.	Simil.	Vocab.	Digit Span	Picture Compl.	Picture Arr.	Block Design	Object Assembly	Coding	Verbal IQ	Perform. IQ	Full IQ
(Grade 6)	51	6	6	9	12	7	8	10	7	12	13	6	87	97	91
	52	6	7	10	9	6	7	9	9	14	9	14	85	107	95
	53	7	6	10	10	8	15	9	8	8	5	4	89	78	82
	54	8	8	8	7	11	5	12	10	7	9	7	90	93	91

TABLE 5

ITPA SCORES FOR SUBJECTS GRADES 2 - 6

	Subj. ID	Aud. Rec.	Aud. Assn.	Verbal Expr.	Aud. Memory	Gram. Closure	Aud. Closure	Sound Bldg.	Visual Rec.	Visual Assn.	Manual Expr.	Visual Closure	Visual Memory
(Gr.2)	1	20	11	21	25	0	11	38	29	34	22	21	37
	2	30	35	32	24	33	29	35	31	40	35	32	34
	3	43	37	32	34	49	36	53	42	34	47	48	25
	4	29	18	33	30	23	20	27	29	33	36	36	25
	5	40	34	27	31	26	24	42	39	37	44	42	27
	6	27	28	30	36	20	30	35	24	32	37	41	28
	7	41	44	41	24	36	37	44	36	38	47	37	43
(Gr.3)	8	35	32	25	38	23	26	40	38	36	37	35	39
	9	36	23	28	35	19	5	22	30	35	31	29	16
	10	27	18	30	27	23	23	28	40	37	42	38	18
	11	33	36	30	46	34	34	46	33	37	42	39	44
	12	36	48	28	39	57	33	56	46	28	40	38	41
	13	42	43	43	40	38	32	37	38	40	45	34	31
	14	42	20	33	27	26	24	34	38	34	49	26	27
	15	26	40	40	25	38	30	38	28	32	5	46	39
	16	34	21	23	40	34	21	39	16	30	27	33	33
	17	21	25	31	28	17	34	41	37	26	34	44	39
	18	23	34	24	27	26	36	40	24	32	41	39	39
	19	21	9	20	20	16	17	28	11	20	30	31	20
	20	25	29	23	27	6	20	46	36	43	31	35	34
	21	13	12	23	24	0	35	22	31	31	32	31	24
	22	32	32	32	35	38	30	43	36	46	45	37	32
	23	38	28	24	29	24	19	44	25	26	31	26	31
	24	24	38	33	34	41	19	43	38	33	38	36	35
	25	27	22	20	36	6	24	33	25	36	23	31	51
(Gr.4)	26	30	18	29	44	20	15	33	22	21	30	26	16
	27	19	30	25	33	10	24	36	27	24	34	30	34
	28	26	34	30	39	39	23	46	30	26	38	24	12
	29	31	32	24	26	41	36	39	27	37	36	35	29
	30	31	37	28	31	48	28	26	34	31	38	40	31
	31	18	13	29	32	0	4	29	30	31	32	28	41
	32	27	18	21	31	11	8	33	37	28	35	26	34
	33	40	46	27	24	41	32	47	45	34	44	35	39
(Gr.5)	34	15	23	22	23	0	8	27	20	27	36	31	23
	35	34	33	27	26	26	33	44	37	30	27	43	36
	36	36	26	26	26	22	32	41	35	29	37	40	32
	37	15	25	31	28	14	16	38	36	32	32	39	48
	38	24	11	13	30	19	6	32	10	18	43	36	20
	39	36	40	25	33	31	37	47	44	38	48	38	33
	40	28	30	27	29	27	27	40	34	34	35	36	30
	41	22	25	36	25	40	27	36	30	36	35	30	25
	42	22	24	24	32	22	27	38	26	28	42	15	30
	43	28	25	34	25	9	25	40	30	33	35	30	44

ITPA SCORES FOR SUBJECTS GRADES 2 - 6

	Subj. ID	Aud. Rec.	Aud. Assn.	Verbal Expr.	Aud. Memory	Gram. Closure	Aud. Closure	Sound Bldg.	Visual Rec.	Visual Assn.	Manual Expr.	Visual Closure	Visual Memory
(Gr.6)	44	15	24	35	25	7	27	8	30	31	25	48	28
	45	25	30	27	27	31	27	40	32	37	46	34	37
	46	38	28	28	27	32	30	30	24	21	36	30	35
	47	37	42	30	40	31	27	34	35	37	33	34	55
	48	20	29	30	29	24	11	39	32	23	43	31	31
	49	31	40	41	37	31	37	48	42	43	41	33	34
	50	25	32	32	26	29	20	41	38	42	43	35	36
	51	30	38	27	32	37	37	43	35	27	40	31	37
	52	25	18	28	29	20	25	37	24	31	29	45	33
	53	36	38	22	50	29	44	44	41	37	42	35	33
	54	32	38	27	25	37	30	30	42	43	43	41	30

TABLE 6

BENDER GESTALT SCORES FOR SUBJECTS GRADES 2 - 6

	Sub. ID	Kopp. Devel.	Kopp. Emot.	Kopp. Neur.		Sub. ID	Kopp. Devel.	Kopp. Emot.	Kopp. Neur.
(Grade 2)	1	14	5	7	(Grade 5)	34	5	1	4
	2	13	4	7		35	3	3	3
	3	10	5	4		36	9	0	8
	4	4	3	3		37	2	2	1
	5	7	2	5		38	8	5	7
	6	3	3	1		39	1	1	1
	7	4	1	3		40	5	3	4
						41	5	5	4
(Grade 3)	8	13	3	9		42	4	2	3
	9	2	4	1		43	4	2	4
	10	2	0	2					
	11	4	3	2	(Grade 6)	44	2	2	2
	12	4	1	4		45	2	4	2
	13	7	5	5		46	1	10	10
	14	4	4	3		47	3	3	2
	15	11	4	6		48	6	1	5
	16	17	4	11		49	0	0	0
	17	3	3	4		50	7	2	6
	18	1	2	1		51	2	2	2
	19	3	3	3		52	2	0	0
	20	3	2	3		53	0	0	2
	21	8	5	7		54	3	3	2
	22	8	4	7					
	23	9	6	6					
	24	5	4	2					
	25	5	4	2					
(Grade 4)	26	6	2	5					
	27	6	3	3					
	28	4	2	3					
	29	15	5	12					
	30	3	4	2					
	31	2	9	1					
	32	7	3	6					
	33	3	5	3					

TABLE 7

WRAT SCORES FOR SUBJECTS GRADES 2 - 6

	Subj. ID	Read.	Arith.	Spell.		Subj. ID	Read.	Arith.	Spell.
(Grade 2)	1	80	79	95	(Grade 5)	34	73	68	80
	2	88	87	88		35	70	67	74
	3	99	97	95		36	74	65	70
	4	69	80	77		37	69	71	81
	5	87	91	90		38	86	83	88
	6	88	89	95		39	68	73	77
	7	109	86	95		40	72	68	71
						41	75	67	73
(Grade 3)	8	85	83	88		42	77	73	80
	9	91	85	96		43	81	73	74
	10	81	78	90					
	11	119	107	99	(Grade 6)	44	66	68	70
	12	114	99	119		45	64	68	80
	13	82	83	92		46	75	71	75
	14	82	86	94		47	65	73	73
	15	97	94	101		48	79	74	80
	16	77	77	76		49	91	86	94
	17	83	83	97		50	69	66	62
	18	76	79	85		51	93	78	86
	19	66	63	78		52	85	75	89
	20	88	87	92		53	101	85	80
	21	79	78	85		54	68	71	89
	22	79	83	92					
	23	72	74	85					
	24	97	91	97					
	25	72	85	75					
(Grade 4)	26	84	77	87					
	27	53	66	71					
	28	91	89	90					
	29	76	77	82					
	30	104	99	92					
	31	77	75	96					
	32	68	66	81					
	33	95	89	77					

TABLE 8

FIRO-BC SCORES FOR SUBJECTS GRADES 2 - 6

	Subject ID	I - ex.	I - w.	C - ex.	C - w.	A - ex.	A - w.	Full I	Full C	Full A
(Grade 2)	1	5	5	3	4	3	5	9	8	8
	2	5	4	3	5	6	1	10	10	4
	3	3	4	3	5	5	1	8	9	4
	4	1	8	3	2	5	1	3	13	4
	5	6	1	5	5	7	2	11	8	7
	6	5	5	6	5	5	3	10	10	9
	7	1	4	7	5	5	1	6	9	8
(Grade 3)	8	2	4	2	4	3	3	6	7	5
	9	5	5	6	6	4	2	11	9	8
	10	5	4	1	5	5	3	10	9	4
	11	3	0	7	7	0	4	10	0	11
	12	4	8	2	4	8	4	8	16	6
	13	3	5	3	2	2	5	5	7	8
	14	5	0	5	3	2	2	8	2	7
	15	3	4	5	2	2	3	5	6	8
	16	3	7	3	5	3	3	8	10	6
	17	3	2	3	3	1	1	6	3	4
	18	3	3	3	3	1	5	6	4	8
	19	3	2	2	3	3	1	6	5	3
	20	1	3	0	3	5	4	4	8	4
	21	4	5	5	4	2	4	8	7	9
	22	5	7	2	6	5	6	11	12	8
	23	4	6	4	2	7	3	6	13	7
	24	2	4	4	5	5	6	7	9	10
	25	3	5	0	4	4	4	7	9	4
(Grade 4)	26	6	6	4	4	4	3	10	10	7
	27	5	7	5	4	2	2	9	9	7

	Subject ID	I - ex.	I - w.	C - ex.	C - w.	A - ex.	A - w.	Full I	Full C	Full A
(Grade 4)	28	4	7	1	4	8	1	8	15	2
	29	1	3	4	4	3	4	5	6	8
	30	3	0	4	7	4	3	10	4	7
	31	3	8	2	1	6	4	4	14	6
	32	3	7	1	6	5	2	9	12	3
	33	1	6	6	4	5	5	5	11	11
(Grade 5)	34	1	6	2	2	2	2	3	6	4
	35	2	5	3	4	1	3	6	6	6
	36	2	0	7	3	4	3	5	4	10
	37	4	8	4	5	3	1	9	11	5
	38	2	8	2	2	7	0	4	15	2
	39	7	3	4	6	2	7	13	5	11
	40	1	0	5	0	1	2	1	1	7
	41	2	5	1	2	4	3	7	7	6
	42	3	8	2	6	4	1	9	12	3
	43	4	5	5	3	1	6	7	6	11
(Grade 6)	44	4	7	2	1	3	2	5	10	4
	45	2	5	3	2	3	0	4	8	3
	46	6	8	2	6	3	3	12	11	5
	47	2	4	1	1	3	2	3	7	3
	48	4	4	3	2	1	2	2	6	5
	49	3	3	1	2	5	4	5	8	5
	50	5	5	3	3	3	3	8	8	6
	51	2	7	4	4	3	3	6	10	7
	52	0	6	4	5	4	3	5	10	7
	53	1	0	1	5	1	4	6	1	5
	54	4	2	6	6	1	6	10	3	12

TABLE 9

MEANS AND STANDARD DEVIATIONS FOR DIAGNOSTIC BATTERY & FIRO-BC

n = 54

Test Title		Mean	Standard Deviation
WISC	Information	7.33	2.07
	Comprehension	8.61	2.84
	Arithmetic	7.96	2.41
	Similarities	9.61	2.87
	Vocabulary	8.31	2.67
	Digit Span	7.81	3.01
	Picture Completion	10.30	3.05
	Picture Arrangement	8.80	2.71
	Block Design	9.61	2.66
	Object Assembly	9.07	2.91
	Coding	8.20	2.57
	Verbal IQ	89.28	11.22
	Performance IQ	94.30	12.12
	Full IQ	89.20	15.87
ITPA	Auditory Reception	28.35	8.05
	Auditory Association	28.96	9.49
	Verbal Expression	28.35	5.66
	Auditory Memory	30.83	6.31
	Grammatic Closure	25.57	13.15
	Auditory Closure	26.02	10.51
	Sound Blending	37.59	8.16
	Visual Reception	32.02	7.80
	Visual Association	32.57	6.16
	Manual Expression	36.46	7.75
	Visual Closure	34.52	6.51
	Visual Memory	32.56	8.49
Bender Gestalt	Develop. (Koppitz)	5.44	3.89
Bender Gestalt	Emotional (Koppitz)	2.93	1.78
Bender Gestalt	Neurogenic (Koppitz)	3.98	2.70
WRAT	Reading	81.65	13.15
	Arithmetic	79.35	9.95
	Spelling	85.15	10.20
FIRO-BC	Inclusion-expressed	3.22	1.58
	Inclusion-wanted	4.59	2.39
	Control-expressed	3.31	1.78
	Control-wanted	3.81	1.65
	Affection-expressed	3.59	1.91
	Affection-wanted	2.98	1.62
	Full Inclusion	7.02	2.67
	Full Control	8.13	3.60
	Full Affection	6.33	2.51

TABLE 10

COMPUTER OUTPUT CORRELATION MATRIX

VARIABLE NO.	1	2	3	4	5	6	7	8	9	10
1 *	1.00000 (54)	0.26700 (54)	0.62499 (54)	0.52918 (54)	0.49720 (54)	0.09311 (54)	0.13950 (54)	0.29554 (54)	-0.01678 (54)	-0.00409 (54)
2 *	0.26700 (54)	1.00000 (54)	0.24904 (54)	0.43518 (54)	0.46317 (54)	0.02839 (54)	0.27347 (54)	0.36684 (54)	0.31993 (54)	0.01242 (54)
3 *	0.62499 (54)	0.24904 (54)	1.00000 (54)	0.33510 (54)	0.32166 (54)	0.07569 (54)	0.17257 (54)	0.36720 (54)	0.31794 (54)	0.20353 (54)
4 *	0.52918 (54)	0.43518 (54)	0.33510 (54)	1.00000 (54)	0.53645 (54)	0.28780 (54)	0.12094 (54)	0.27784 (54)	0.03110 (54)	0.07658 (54)
5 *	0.49720 (54)	0.46317 (54)	0.32166 (54)	0.53645 (54)	1.00000 (54)	-0.04587 (54)	0.41184 (54)	0.27031 (54)	0.07466 (54)	0.18075 (54)
6 *	0.09311 (54)	0.02839 (54)	0.07569 (54)	0.28780 (54)	-0.04587 (54)	1.00000 (54)	0.05036 (54)	0.07263 (54)	0.10435 (54)	-0.09575 (54)
7 *	0.13950 (54)	0.27347 (54)	0.17257 (54)	0.12094 (54)	0.41184 (54)	0.05036 (54)	1.00000 (54)	0.27137 (54)	0.23289 (54)	0.17464 (54)
8 *	0.29554 (54)	0.36684 (54)	0.36720 (54)	0.27784 (54)	0.27031 (54)	0.07263 (54)	0.27137 (54)	1.00000 (54)	0.22765 (54)	0.23423 (54)
9 *	-0.01678 (54)	0.31993 (54)	0.31794 (54)	0.03110 (54)	0.07466 (54)	0.10435 (54)	0.23289 (54)	0.22765 (54)	1.00000 (54)	0.27844 (54)
10 *	-0.00409 (54)	0.01242 (54)	0.20353 (54)	0.07658 (54)	0.18075 (54)	-0.09575 (54)	0.17464 (54)	0.23423 (54)	0.27844 (54)	1.00000 (54)
11 *	0.06025 (54)	0.17296 (54)	0.17154 (54)	-0.04198 (54)	0.18526 (54)	0.11990 (54)	0.25663 (54)	0.15480 (54)	0.33628 (54)	0.11924 (54)
12 *	0.75625 (54)	0.39949 (54)	0.68235 (54)	0.72636 (54)	0.75579 (54)	0.12397 (54)	0.27177 (54)	0.32830 (54)	0.15242 (54)	0.13149 (54)
13 *	0.18479 (54)	0.39929 (54)	0.40471 (54)	0.17048 (54)	0.38751 (54)	0.07825 (54)	0.63381 (54)	0.61179 (54)	0.63886 (54)	0.58826 (54)
14 *	0.34538 (54)	0.37747 (54)	0.37392 (54)	0.34335 (54)	0.38666 (54)	0.14249 (54)	0.50651 (54)	0.32435 (54)	0.29515 (54)	0.25386 (54)
15 *	0.22705 (54)	0.32280 (54)	0.29536 (54)	0.22384 (54)	0.54869 (54)	0.07152 (54)	0.40627 (54)	0.28917 (54)	0.25337 (54)	0.15448 (54)
16 *	0.29822 (54)	0.29321 (54)	0.33431 (54)	0.31777 (54)	0.50944 (54)	0.15688 (54)	0.34055 (54)	0.26849 (54)	0.17758 (54)	0.15901 (54)

COMPUTER OUTPUT CORRELATION MATRIX[a]

17	*	0.29127	0.49735	0.25725	0.22258	0.26130	0.08321	0.20496	0.22540	0.38114	0.02762
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
18	*	0.09346	-0.07835	0.19174	0.10175	0.18261	0.42304	0.14678	-0.16441	0.13724	0.01579
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
19	*	0.36376	0.30040	0.36911	0.26932	0.43746	0.00128	0.35317	0.25310	0.08992	0.09705
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
20	*	0.13460	0.15571	0.13008	0.16965	0.36066	0.16476	0.31722	0.12362	0.22521	0.05744
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
21	*	0.17770	0.14874	0.29943	0.33159	0.46813	-0.18948	0.13789	0.18626	0.10775	0.34263
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
22	*	0.07524	0.42286	0.17143	0.25354	0.58157	-0.05594	0.29774	0.17279	0.27508	0.09131
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
23	*	-0.02658	0.22296	0.06499	0.02414	0.33845	0.05770	0.37973	0.32846	0.34763	0.09464
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
24	*	0.03544	0.24920	0.19312	0.17122	0.27166	-0.06147	0.27433	0.10407	0.00603	-0.13362
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
25	*	0.05029	0.19679	0.10616	0.18313	0.16871	0.25735	0.34427	0.33634	0.21021	0.08683
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
26	*	-0.05695	-0.15139	-0.01709	-0.08312	0.21740	-0.01339	0.06441	0.15143	0.10790	0.41580
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
27	*	0.13106	0.02569	-0.10478	0.04705	0.02404	-0.02783	-0.10789	-0.08635	-0.24820	-0.07330
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
28	*	0.02672	0.04544	-0.05663	-0.00925	0.14907	-0.18563	0.00743	0.18078	-0.04897	0.00819
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
29	*	0.06056	-0.03946	-0.19038	0.01100	-0.02231	-0.06874	-0.11372	-0.20765	-0.37646	-0.13388
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
30	*	-0.02257	0.28241	-0.20646	0.12091	0.00975	-0.10029	-0.05961	-0.11892	-0.01464	-0.09197
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
31	*	-0.33114	-0.03962	-0.10535	-0.24424	-0.43294	-0.11090	-0.37904	-0.36692	0.01874	0.02029
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
32	*	0.27726	0.16292	0.07595	0.18316	0.38052	-0.13767	0.17680	0.20103	-0.08344	-0.04731
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)

[a]Variables 1 - 10.

COMPUTER OUTPUT CORRELATION MATRIX[a]

33	*	0.05369	0.09038	0.20636	0.03966	0.16955	0.01553	0.29853	0.05383	0.03852	-0.04740
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
34	*	0.06764	0.25034	0.30633	0.05492	0.00700	-0.06150	-0.08410	0.09484	0.27469	0.05205
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
35	*	0.13465	-0.00560	0.07588	0.31790	0.43564	-0.04264	0.20760	0.01182	0.06289	0.25224
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
36	*	0.02120	0.23504	-0.00277	0.09277	0.16571	-0.06416	0.16972	-0.01227	0.02706	-0.08356
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
37	*	-0.18196	0.11523	0.10081	-0.13846	-0.28018	-0.11410	-0.28316	-0.20411	0.18490	0.04855
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
38	*	0.28340	0.11936	0.09693	0.34199	0.56576	-0.13419	0.25303	0.16245	-0.04435	0.12844
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
39	*	0.49705	0.17117	0.65044	0.40669	0.37311	0.27806	0.16087	0.29421	0.29924	0.15164
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
40	*	0.44164	0.28496	0.60671	0.37195	0.39886	0.25235	0.30638	0.31312	0.43171	0.16026
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
41	*	0.31111	0.22914	0.48043	0.32001	0.29037	0.02142	0.19893	0.21868	0.38926	0.31629
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)

[a]Variables 1 - 10.

COMPUTER OUTPUT CORRELATION MATRIX

VARIABLE NO. (CONTINUED)

	11	12	13	14	15	16	17	18	19	20
1 *	0.00023	0.75623	0.18479	0.34538	0.22705	0.29822	0.29129	0.09346	0.38896	0.13060
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
2 *	0.17276	0.59949	0.39929	0.37767	0.32289	0.29321	0.49935	-0.07895	0.30048	0.15571
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
3 *	0.17154	0.63235	0.40471	0.37392	0.29536	0.33431	0.25725	0.19194	0.36911	0.13008
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
4 *	-0.04196	0.72636	0.17048	0.34335	0.22384	0.31777	0.22258	0.10175	0.26932	0.16965
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
5 *	0.16526	0.75579	0.38751	0.38866	0.54869	0.50944	0.26130	0.18261	0.43746	0.36066
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
6 *	0.11990	0.12397	0.07825	0.14249	0.07152	0.15688	0.08321	0.42304	0.00128	0.16476
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
7 *	0.25063	0.27177	0.63381	0.50651	0.40627	0.34055	0.20496	0.14678	0.35317	0.31722
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
8 *	0.15490	0.32830	0.61179	0.32435	0.28917	0.28849	0.22540	-0.16441	0.25310	0.12362
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
9 *	0.33626	0.15242	0.63886	0.29515	0.25337	0.17758	0.38114	0.13724	0.08992	0.22521
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
10 *	0.11924	0.13149	0.58626	0.25386	0.15448	0.15901	0.02762	0.01579	0.09705	0.05744
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
11 *	1.00000	0.18751	0.57828	0.35092	0.16741	-0.02323	0.12610	0.02493	0.11047	0.07183
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
12 *	0.18751	1.00000	0.36228	0.48947	0.38491	0.44506	0.46365	0.13384	0.46956	0.24055
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
13 *	0.57828	0.36228	1.00000	0.57533	0.42470	0.31144	0.33274	0.06434	0.32490	0.27106
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
14 *	0.35092	0.48947	0.57533	1.00000	0.32192	0.34332	0.20714	0.17609	0.44578	0.21295
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
15 *	0.16741	0.38491	0.42470	0.32192	1.00000	0.52275	0.20840	0.36489	0.54438	0.29392
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
16 *	-0.02323	0.44506	0.31144	0.34332	0.52275	1.00000	0.44552	0.27248	0.73253	0.54856
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)

COMPUTER OUTPUT CORRELATION MATRIX[b]

17 *	0.12613	0.46360	0.33274	0.20714	0.20840	0.44552	1.00000	0.02289	0.37536	0.28573
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
18 *	0.02493	0.13384	0.06434	0.17609	0.36489	0.27248	0.02289	1.00000	0.25420	0.17037
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
19 *	0.11047	0.46956	0.32490	0.44578	0.54438	0.73253	0.37536	0.25420	1.00000	0.43452
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
20 *	0.07193	0.24055	0.27106	0.21295	0.29392	0.54856	0.28573	0.17037	0.43452	1.00000
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
21 *	-0.03753	0.36512	0.22532	0.20472	0.49128	0.60157	0.08923	0.27272	0.52846	0.35084
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
22 *	0.12917	0.39629	0.30640	0.30880	0.45995	0.62589	0.40408	0.14763	0.38918	0.32851
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
23 *	0.09432	0.15198	0.37978	0.20277	0.40572	0.42224	0.39102	0.07342	0.22116	0.30711
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
24 *	0.13859	0.20423	0.14183	0.16139	0.37320	0.33210	0.07600	0.14962	0.38711	0.23373
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
25 *	0.05993	0.14476	0.42755	0.29803	0.17478	0.34282	0.26107	-0.07540	0.28202	0.42039
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
26 *	0.09074	0.02464	0.26037	-0.02711	0.04943	0.36965	0.12422	0.06433	0.01191	0.19231
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
27 *	0.00948	0.05495	-0.14712	-0.00117	0.03524	-0.13017	-0.14510	-0.07856	0.08088	-0.12624
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
28 *	-0.04115	0.12879	0.05200	0.11836	0.06242	-0.19611	-0.07260	-0.07846	-0.04556	-0.24000
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
29 *	-0.05540	-0.03157	-0.27611	-0.12593	-0.01671	-0.14655	-0.20993	-0.11956	0.07370	-0.10421
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
30 *	-0.17490	-0.05979	-0.10671	-0.11830	-0.08021	-0.09316	0.06976	0.06675	-0.06927	-0.04142
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
31 *	-0.09191	-0.23936	-0.25836	-0.21640	-0.37800	-0.23404	-0.05639	-0.01431	-0.17147	-0.32004
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
32 *	-0.03018	0.24471	0.11306	0.04160	0.28506	0.18134	0.19076	-0.15503	0.13759	0.24869
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)

[b]Variables 11 - 20.

COMPUTER OUTPUT CORRELATION MATRIX[b]

33	*	0.10089	0.09109	0.15043	0.15115	0.16286	0.14195	-0.14803	0.23075	0.25480	0.20687
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
34	*	0.29601	0.15566	0.18230	0.27771	0.16822	-0.01207	-0.03125	0.07120	0.17440	-0.18131
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
35	*	0.01674	0.20338	0.17523	-0.02441	0.13997	0.27540	0.06142	0.13957	0.09547	0.23225
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
36	*	-0.05931	0.03876	0.05134	0.03707	0.06515	0.02342	-0.02982	0.17057	0.14206	0.14448
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
37	*	0.11120	-0.07242	-0.06197	0.00861	-0.14207	-0.15112	-0.05490	0.04905	-0.01330	-0.29949
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
38	*	-0.01027	0.35264	0.19101	0.01737	0.28103	0.30003	0.19502	-0.03392	0.17543	0.32763
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
39	*	0.23995	0.39028	0.34085	0.37620	0.38721	0.42829	0.25386	0.36613	0.48009	0.28294
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
40	*	0.24855	0.34761	0.44559	0.46356	0.41991	0.42032	0.22692	0.42972	0.44715	0.28616
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
41	*	0.25444	0.47111	0.41742	0.46846	0.23755	0.19996	0.21281	0.25351	0.27558	0.08975
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)

[b]Variables 11 - 20.

COMPUTER OUTPUT CORRELATION MATRIX

VARIABLE NO. (CONTINUED)

		21	22	23	24	25	26	27	28	29	30
1	*	0.17770 (54)	0.07524 (54)	-0.02658 (54)	0.03534 (54)	0.05029 (54)	-0.05895 (54)	0.13106 (54)	0.02672 (54)	0.06056 (54)	-0.02257 (54)
2	*	0.14674 (54)	0.42266 (54)	0.22296 (54)	0.24920 (54)	0.19879 (54)	-0.15139 (54)	0.02569 (54)	0.04544 (54)	-0.03946 (54)	0.28241 (54)
3	*	0.29943 (54)	0.17143 (54)	0.06499 (54)	0.19312 (54)	0.10616 (54)	-0.01709 (54)	-0.10498 (54)	-0.05663 (54)	-0.19038 (54)	-0.20646 (54)
4	*	0.33459 (54)	0.25354 (54)	0.02414 (54)	0.17122 (54)	0.18313 (54)	-0.08312 (54)	0.04705 (54)	-0.00925 (54)	0.01100 (54)	0.12091 (54)
5	*	0.40813 (54)	0.28157 (54)	0.33645 (54)	0.27166 (54)	0.16671 (54)	0.21740 (54)	0.02404 (54)	0.14907 (54)	-0.02231 (54)	0.00975 (54)
6	*	-0.18946 (54)	-0.05594 (54)	0.05770 (54)	-0.06147 (54)	0.25735 (54)	-0.01339 (54)	-0.02783 (54)	-0.18563 (54)	-0.06874 (54)	-0.10029 (54)
7	*	0.13703 (54)	0.29774 (54)	0.37973 (54)	0.27433 (54)	0.34427 (54)	0.06441 (54)	-0.10789 (54)	0.00743 (54)	-0.11372 (54)	-0.05961 (54)
8	*	0.18826 (54)	0.17279 (54)	0.32846 (54)	0.10407 (54)	0.33634 (54)	0.15143 (54)	-0.08635 (54)	0.18078 (54)	-0.20765 (54)	-0.11892 (54)
9	*	0.10775 (54)	0.27508 (54)	0.34763 (54)	0.00603 (54)	0.21021 (54)	0.10790 (54)	-0.24820 (54)	-0.04897 (54)	-0.37646 (54)	-0.01464 (54)
10	*	0.34263 (54)	0.09131 (54)	0.09464 (54)	-0.13362 (54)	0.08683 (54)	0.41580 (54)	-0.07330 (54)	0.00819 (54)	-0.13388 (54)	-0.09197 (54)
11	*	-0.03753 (54)	0.12917 (54)	0.09432 (54)	0.13839 (54)	0.35093 (54)	0.09074 (54)	0.00948 (54)	-0.04115 (54)	-0.05540 (54)	-0.17496 (54)
12	*	0.30542 (54)	0.39629 (54)	0.15198 (54)	0.20423 (54)	0.14476 (54)	0.02464 (54)	0.05495 (54)	0.12879 (54)	-0.03157 (54)	-0.05979 (54)
13	*	0.22932 (54)	0.30940 (54)	0.37978 (54)	0.14183 (54)	0.42755 (54)	0.26037 (54)	-0.14712 (54)	0.05500 (54)	-0.27611 (54)	-0.10671 (54)
14	*	0.20472 (54)	0.30880 (54)	0.20277 (54)	0.16139 (54)	0.29803 (54)	-0.02711 (54)	-0.00117 (54)	0.11836 (54)	-0.12593 (54)	-0.11830 (54)
15	*	0.49128 (54)	0.45995 (54)	0.40372 (54)	0.37320 (54)	0.17478 (54)	0.04943 (54)	0.03524 (54)	0.06242 (54)	-0.01671 (54)	-0.08021 (54)
16	*	0.60157 (54)	0.42567 (54)	0.42224 (54)	0.33210 (54)	0.34282 (54)	0.36965 (54)	-0.13017 (54)	-0.19611 (54)	-0.14655 (54)	-0.09316 (54)

COMPUTER OUTPUT CORRELATION MATRIX[c]

17	*	[illegible]	[illegible]	0.39132	0.07600	0.26107	0.12422	-0.14510	-0.07260	-0.20993	0.06976
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
18	*	0.27272	0.14763	0.07342	0.14962	-0.07540	0.06433	-0.07856	-0.07846	-0.11956	0.06675
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
19	*	0.32646	[illegible]	0.22116	0.38711	0.28202	0.01191	0.08088	-0.04556	0.07370	-0.06927
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
20	*	0.35034	0.32851	0.30711	0.23373	0.42039	0.19231	-0.12624	-0.24000	-0.10421	-0.04142
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
21	*	1.00000	0.46776	0.24763	0.34893	0.09279	0.30618	0.03491	-0.13695	0.00553	-0.11912
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
22	*	0.46776	1.00000	0.58128	0.42171	0.27253	0.27382	-0.27104	-0.16639	-0.24675	0.05518
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
23	*	0.24763	0.58128	1.00000	0.23939	0.23059	0.26935	-0.07329	0.03757	-0.14823	-0.04344
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
24	*	0.34893	0.42171	0.23939	1.00000	-0.02272	-0.12775	-0.26318	-0.17970	-0.14267	0.06404
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
25	*	0.09279	0.27253	0.23059	-0.02272	1.00000	0.14988	-0.13274	-0.17365	-0.15712	-0.17279
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
26	*	0.30618	0.27382	0.26935	-0.12775	0.14988	1.00000	-0.04455	0.01985	-0.10202	-0.19113
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
27	*	0.03491	-0.27104	-0.07329	-0.26318	-0.13274	-0.04455	1.00000	0.31211	0.91182	0.11038
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
28	*	-0.13695	-0.16639	0.03757	-0.17970	-0.17365	0.01985	0.31211	1.00000	0.17635	-0.04009
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
29	*	0.00553	-0.24675	-0.14823	-0.14267	-0.15712	-0.10202	0.91182	0.17635	1.00000	0.07449
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
30	*	-0.11912	0.05518	-0.04344	0.06404	-0.17279	-0.19113	0.11038	-0.04009	0.07449	1.00000
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
31	*	-0.17369	-0.29943	-0.33707	-0.18943	-0.29303	-0.01713	0.10913	0.14921	0.09901	0.08747
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
32	*	-0.09263	0.29283	0.31557	0.10602	0.23309	0.02271	0.04663	0.05393	-0.01031	0.09331
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)

[c]Variables 21 - 30.

COMPUTER OUTPUT CORRELATION MATRIX[c]

33	*	0.15989	0.17028	0.12193	0.22162	0.02106	-0.03640	0.06792	-0.19406	0.01172	0.31444
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
34	*	0.11498	-0.01366	-0.06193	0.09027	-0.13333	-0.24991	0.09176	0.14880	0.04155	0.07281
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
35	*	0.45217	0.33375	0.41575	0.03023	0.04666	0.24653	-0.03113	0.03809	-0.02550	0.15364
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
36	*	0.31904	0.13786	0.10401	0.14720	-0.08892	-0.14919	0.10095	-0.08917	0.04108	0.75695
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
37	*	-0.13453	-0.19616	-0.28121	-0.07115	-0.25551	-0.12417	0.12427	0.17167	0.08962	0.12165
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
38	*	0.21823	0.27912	0.28699	0.09202	0.18542	0.16175	0.01140	0.08002	-0.02365	0.15384
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
39	*	0.33691	0.26118	0.21975	0.17022	0.19308	0.03711	-0.04008	-0.06984	-0.09967	-0.14129
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
40	*	0.33574	0.27691	0.22641	0.13046	0.24098	0.06503	0.02902	0.12353	-0.11128	0.01385
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
41	*	0.27845	0.21828	0.09346	0.05344	0.12616	-0.03709	-0.02735	0.14614	-0.14618	0.06852
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)

[c]Variables 21 - 30.

COMPUTER OUTPUT CORRELATION MATRIX

VARIABLE NO. (CONTINUED)

		31	32	33	34	35	36	37	38	39	40
1	*	-0.33114	0.27726	0.05669	0.06704	0.13455	0.02900	-0.18196	0.28840	0.49703	0.44164
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
2	*	-0.03962	0.16292	0.09938	0.25034	-0.00560	0.23504	0.11523	0.11936	0.17117	0.26406
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
3	*	-0.10555	0.07595	0.20836	0.30633	0.07588	-0.00277	0.10081	0.09693	0.65044	0.60671
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
4	*	-0.24424	0.10316	0.03966	0.05892	0.31790	0.09277	-0.13848	0.34199	0.40669	0.37195
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
5	*	-0.43294	0.38052	0.16955	0.00700	0.43564	0.16571	-0.28018	0.56576	0.37311	0.39886
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
6	*	-0.11000	-0.13767	0.01553	-0.06150	-0.04264	-0.06416	-0.11410	-0.13419	0.27806	0.25235
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
7	*	-0.37904	0.17680	0.29853	-0.08410	0.20760	0.16972	-0.28316	0.25303	0.16087	0.30638
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
8	*	-0.36602	0.20103	0.05383	0.09484	0.01182	-0.01227	-0.20411	0.16245	0.29421	0.31312
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
9	*	0.01874	-0.00344	0.03852	0.27469	0.06289	0.02706	0.18490	-0.04435	0.29924	0.43171
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
10	*	0.02029	-0.04731	-0.04746	0.05205	0.25224	-0.08356	0.04855	0.12844	0.15164	0.16026
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
11	*	-0.09191	-0.03016	0.10089	0.29601	0.01874	-0.05991	0.11120	-0.01627	0.23998	0.24855
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
12	*	-0.23938	0.24471	0.09109	0.15566	0.26388	0.03878	-0.07242	0.35264	0.59028	0.54981
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
13	*	-0.25836	0.11396	0.15043	0.18280	0.17523	0.05134	-0.06199	0.19101	0.34085	0.44559
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
14	*	-0.21640	0.04160	0.15115	0.27771	-0.02441	0.03707	0.00861	0.01737	0.37620	0.46356
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
15	*	-0.37800	0.26506	0.16286	0.16822	0.13997	0.06515	-0.14207	0.28103	0.38721	0.41991
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
16	*	-0.23404	0.18134	0.14105	-0.01207	0.27540	0.02342	-0.15112	0.30003	0.42829	0.42032
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)

COMPUTER OUTPUT CORRELATION MATRIX[d]

17 *	-0.05639	0.19076	-0.14803	-0.03125	0.06142	-0.02982	-0.05490	0.19502	0.25386	0.22692
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
18 *	-0.01431	-0.15503	0.23075	0.07120	0.13957	0.17057	0.04905	-0.03392	0.36613	0.42972
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
19 *	-0.07147	0.13759	0.25430	0.17440	0.09547	0.14206	-0.01330	0.17543	0.48009	0.44715
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
20 *	-0.32054	0.24369	0.20687	-0.18131	0.23225	0.14448	-0.29949	0.32763	0.28294	0.28616
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
21 *	-0.17353	0.08263	0.15989	0.11409	0.25219	0.01904	-0.03853	0.21823	0.38891	0.33574
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
22 *	-0.29942	0.09283	0.17928	-0.01068	0.33075	0.13786	-0.18610	0.27512	0.28118	0.27691
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
23 *	-0.33717	0.01557	0.12190	-0.06193	0.41575	0.10401	-0.26121	0.28699	0.11975	0.22841
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
24 *	-0.19953	0.10602	0.22162	0.09027	0.03025	0.14720	-0.07115	0.09202	0.17022	0.13046
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
25 *	-0.29303	0.23309	0.02106	-0.13333	0.04666	-0.08892	-0.25551	0.18542	0.19308	0.24098
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
26 *	-0.01713	0.02271	-0.03640	-0.24991	0.24653	-0.14919	-0.12417	0.16175	0.03711	0.06503
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
27 *	0.10913	0.04663	0.06792	0.09176	-0.03113	0.10095	0.12427	0.01140	-0.04008	0.02902
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
28 *	0.14972	0.05393	-0.19406	0.14880	0.03809	-0.08917	0.17167	0.08002	-0.06984	0.12363
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
29 *	0.09901	-0.01031	0.01172	0.04155	-0.02550	0.04108	0.08962	-0.02365	-0.09967	-0.11128
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
30 *	0.06747	0.09351	0.31444	0.07281	0.15364	0.75695	0.12165	0.15384	-0.14129	0.01385
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
31 *	1.00000	-0.30859	-0.05681	0.39324	-0.14568	0.02727	0.86394	-0.31056	-0.23362	-0.22824
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
32 *	-0.30859	1.00000	0.22823	-0.23966	0.10488	0.17383	-0.31214	0.75890	0.21648	0.14831
	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)

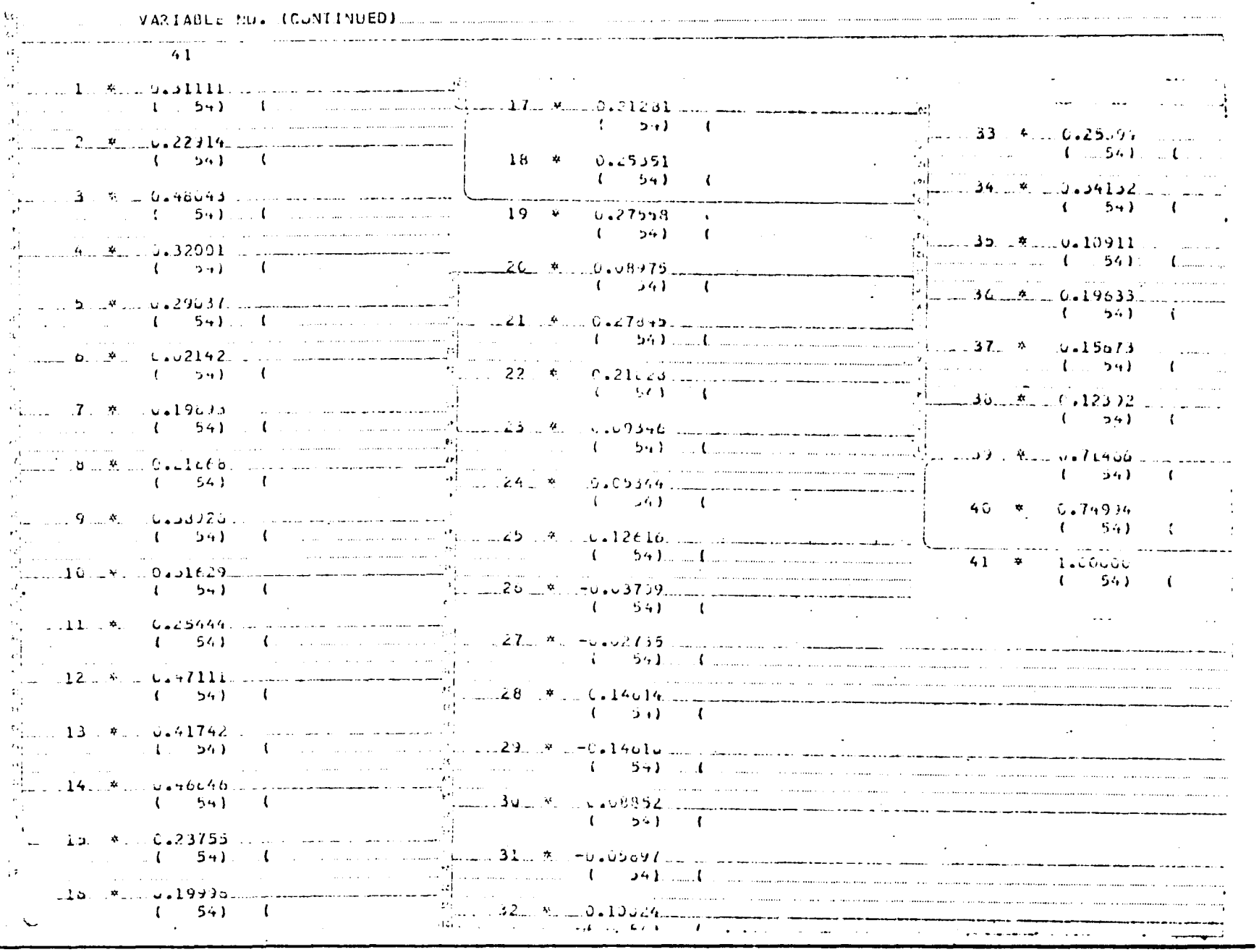
[d]Variables 31 - 40.

COMPUTER OUTPUT CORRELATION MATRIX[d]

33	*	-0.09681	0.22823	1.00000	0.05260	0.20771	0.81022	0.00718	0.27963	0.35234	0.34690
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
34	*	0.39314	-0.23966	0.05260	1.00000	-0.21844	0.11767	0.79118	-0.30780	0.24060	0.29215
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
35	*	-0.14968	0.10488	0.20771	-0.21844	1.00000	0.23616	-0.20967	0.71862	0.10780	0.12485
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
36	*	0.02727	0.17383	0.81022	0.11767	0.23616	1.00000	0.08643	0.27548	0.12839	0.21104
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
37	*	0.86394	-0.31214	0.00718	0.79118	-0.20967	0.08643	1.00000	-0.36142	-0.01664	0.02510
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
38	*	-0.31096	0.75810	0.27963	-0.30780	0.71862	0.27548	-0.36142	1.00000	0.21576	0.16744
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
39	*	-0.23502	0.21648	0.35234	0.24060	0.10780	0.12839	-0.01664	0.21576	1.00000	0.86701
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
40	*	-0.22424	0.14831	0.34690	0.29215	0.12485	0.21104	0.02510	0.16744	0.86701	1.00000
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
41	*	-0.05897	0.16074	0.25094	0.34132	0.10911	0.19633	0.15673	0.12392	0.71466	0.74994
		(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)

[d]Variables 31 - 40.

COMPUTER OUTPUT CORRELATION MATRIX



VARIABLE NO. (CONTINUED)

41

1 * 0.31111
(54) (

2 * 0.22314
(54) (

3 * 0.48643
(54) (

4 * 0.32001
(54) (

5 * 0.29837
(54) (

6 * 0.02142
(54) (

7 * 0.19633
(54) (

8 * 0.21666
(54) (

9 * 0.33926
(54) (

10 * 0.31629
(54) (

11 * 0.25644
(54) (

12 * 0.47111
(54) (

13 * 0.41742
(54) (

14 * 0.46646
(54) (

15 * 0.23755
(54) (

16 * 0.19936
(54) (

17 * 0.31281
(54) (

18 * 0.25351
(54) (

19 * 0.27598
(54) (

20 * 0.08975
(54) (

21 * 0.27845
(54) (

22 * 0.21628
(54) (

23 * 0.09346
(54) (

24 * 0.05344
(54) (

25 * 0.12616
(54) (

26 * -0.03709
(54) (

27 * -0.02735
(54) (

28 * 0.14014
(54) (

29 * -0.14016
(54) (

30 * 0.08852
(54) (

31 * -0.05697
(54) (

32 * 0.10324
(54) (

33 * 0.25094
(54) (

34 * 0.34152
(54) (

35 * 0.10911
(54) (

36 * 0.19633
(54) (

37 * 0.15873
(54) (

38 * 0.12372
(54) (

39 * 0.71486
(54) (

40 * 0.74934
(54) (

41 * 1.00000
(54) (