A DESCRIPTIVE ANALYSIS OF THE RELATIONSHIP OF READING PERFORMANCE AND SELECTED CHARACTERISTICS OF PUPILS WITH SPECIAL EDUCATIONAL NEEDS

THESIS

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ABSTRACT

This study was designed to identify the similarities and differences among children who are experiencing difficulty in learning to read. A review of the literature showed that physical, psychological and sociological factors including language and teacher expectations may cause reading difficulty. The literature further suggests that there is a need to assess these factors in individual learners so that reading instruction can be designed for children to experience success in reading.

The characteristics of fourteen low achieving first grade students were analyzed through data collected in a variety of ways. The data analysis included the similarities and differences within the group, the relationship of each of the 18 identified variables to the criterion variable, reading, and an individual profile with analysis for each student. This group of low achieving students was found to be most alike on IQ, personal-social behavior ratings of teachers, receptive language, reading achievement, orientation, and auditory comprehension ratings of teachers. They were less alike on locus of control, reading readiness, spoken language ratings of teachers, and expressive language. The group differed most in number of children in the home, number of errors on the language screening test, number of languages spoken in the home, conceptual tempo, socioeconomic status, number of employed parents, basic concepts, and auditory attention span for related syllables.

The variables which correlated most highly with reading achievement were locus of control, number of languages spoken in the home, receptive language, and teacher ratings of spoken language and personal social behavior. A positive relationship to reading achievement was shown with locus of control, number of languages spoken in the home, reading readiness, language development, socioeconomic status, expressive language, and IQ. An inverse relationship was found with receptive language, spoken language, personal social behavior, auditory attention span, number of children in the home, auditory comprehension, number of employed parents, orientation, basic concepts, and conceptual tempo. The individual profiles compared the students' scores for each variable in the study with both the group and national mean.

The study was limited to a small number of students in a suburban school. Other limitations were imposed by design which did not include factors such as classroom environment, type of reading program, or attitudes that are important in reading achievement.

It has been recommended that the results of this study serve as a base for future research to include: (1) a diagnostic instructional program; (2) a follow-up study with the same group of students; (3) exploration of new instruments to assess the same factors; (4) a study of factors not included in the present design; and (5) a comparative study between urban and suburban school children.

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CHAPTER I

STATEMENT OF THE PROBLEM

One of the most important tasks for the elementary school child is learning to read. This task consists of a series of complex activities that begin early for most children and continue for many years. Many children learn to read smoothly and without observable effort while others experience frustration and failure.

Educators recognize and research has shown that many factors influence the process of learning to read. Reading is one of the most complex and difficult tasks a person is called upon to perform in his lifetime because it is a language process, a psycholinguistic process, and a physiological process. Therefore, the development of a child's ability to read is dependent upon a wide range of interacting processes and skills.

Inasmuch as learning to read is a complex process, the teaching of reading must reflect this complexity. Each child is a unique entity and needs to develop her/his own capacity for learning to read. Specific factors related to individual differences in learning must be the primary focus of teaching and assessing reading performance for a child. This study identifies and describes specific factors that may influence the reading achievement of pupils who have been identified as low achievers.

Purpose of the Study

The primary purpose of this study was to:

1. Review the literature to identify which factors inhibit some children from becoming competent readers.

2. Assess the extent of these factors in a group of first grade students who had been identified as pupils with special educational needs because of their inability to perform readiness level skills in reading at the beginning of first grade.

3. Identify the characteristics which show similarities or differences within this group of first grade students.

4. Show the relationship of each of these factors to reading performance for this group of first grade students.

5. Develop an individual profile for each child within this group.

Questions of This Study

This study was concerned with the similarities and differences within a group of low performing students in reading as well as individual learner characteristics. The data collected for fourteen first grade pupils with special educational needs were analyzed in search of answers to the following questions:

1. Which characteristics show a high degree of variability within the group?

2. Which characteristics show a high degree of similarity within the group?

3. What is the relationship between expressive language and reading performance for this group of students?

4. What is the relationship between receptive language and reading performance for this group of students?

5. What is the relationship between understanding of basic concepts that are essential to school achievement and reading performance for this group of students?

6. What is the relationship between teacher perception of their performance and reading for this group of students?

7. What is the relationship between locus of control and reading performance for this group of students?

8. What is the relationship between conceptual tempo and reading performance for this group of students?

Need for This Study

There is a need to find procedures and measures which will give a more precise assessment of the extent of various factors which influence individual differences in reading achievement.

Teacher ratings of a student's school performance and assessment of her/his developmental stage are commonly used as a basis for grouping children in the first grade. In addition, standardized readiness instruments are often used to provide an objective assessment for clarifying the subjective data used. These methods are useful in identifying those children who will succeed or fail in beginning reading. However, they tell little about the characteristics or needs of the child who will experience difficulty.

The objective of this study was to identify factors reported in the literature that show a relationship to reading and to assess the extent to which these factors were present in a group of fourteen children who have been identified as pupils with special educational needs prior to first grade reading. Although it appears that this was a homogeneous group of students, they did have varied learner characteristics. Therefore it was important to look at them both as a group and as individuals with specific needs.

Many research studies (Entwisle, 1971; Loban, 1963; Strickland, 1969) consider one or a few characteristics and express the need to consider other characteristics that may influence the child's failure to learn to read. Research which describes the extent of these characteristics in individual low achieving children is lacking.

There is a need to develop a more effective diagnostic procedure which considers all of the physical, experiential, social, educational, behavioral, environmental, and psychological factors that are interacting within the individual child beginning the task of learning how to read.

The results of this study will have instructional implications for this group of students as the similarities and differences of the group are identified and from the individual profiles of each child in this study.

Further instructional implications can be derived from the identification and description of the specific factors that influence reading achievement.

The results of this study will also have implications for the diagnostic assessment of children with reading problems.

Definition of Terms

Conceptual Tempo. This is a term used by Jerome Kagan to refer to the learning style an individual uses in responding to a difficult task. A reflective learning style is displayed when a child is analytical and will delay a response until there is a consideration of alternatives. An impulsive learning style is displayed when an individual responds quickly without considering alternatives. Fast responses lead to more errors.

Locus of Control. This term refers to differences in the extent to which individuals believe that reinforcement is related to their own behavior. An internal person believes s/he can control one's own behavior. An external person believes that reinforcements are independent of their own behavior but rather the result of luck, fate, or dominant others.

PSEN. This is a term used for identifying "Pupils with Special Educational Needs," in compliance with New York State requirements of Chapter 848: Long Range Planning and Chapter 241: District PSEN Plan. (See Appendix A)

Limitations of the Study

The results of this study are limited in the following ways:

1. The population was limited to fourteen children in a predominately white lower middle class suburban school.

2. Some measures to assess language development used in the study are in the experimental stage and have not been statistically validated.

3. Any examination of individual differences must inevitably be incomplete. As more is learned about the topic, new questions emerge for further research.

4. The study did not explore the various approaches used in first grade for teaching reading to this group of students.

5. This study did not consider the child's attitude toward reading.

Summary

Reading is a complex task, and each child must develop the capacity to read. Specific factors affecting a child's performance in reading must be the focus of assessment. This study was proposed to identify and select measures for assessing individual differences in children as they relate to reading.

A variety of measures were selected to become the foundation for the present study that describes the characteristics of a group of fourteen first grade students. The data collected were analyzed to identify similarities or differences among these children, to describe the relationship of specific factors to reading, and to develop profiles for each individual child in this study.

CHAPTER II

REVIEW OF THE LITERATURE

Reading is a complex process consisting of a unique combination of many factors. This investigation of the literature was concerned with research which describes the causes of reading difficulty and research in the specific areas which cause reading difficulty.

Research Which Describes the Causes of Reading Difficulty

The question of why some children experience great difficulty in learning to read has stimulated much research. Learning to read has been described by Entwisle (1971) as being dependent upon a whole series of complex learnings which include: social roles, oral communication skills, problem solving strategies, the nature of the environment as well as mean-ends relationships. Many models have been formulated to understand the complexity of behavior in a reading situation, but these models aim at the explication of reading as an activity carried on by a single person. They give little attention to the individual differences among a group of learners and tend to focus on those relationships which are believed to be common to all participants in the process.

Reading must be evaluated as a total process, and reading difficulty may be viewed as being caused by a multiplicity of factors that are educational, sociological, or psychological in nature. All of these are highly interrelated because, "The individual is a

physical organism, functioning in a social environment, in a psychological manner" (Abrams, 1964, p. 28).

Robinson's (1946) earlier studies identified three specific causes of reading difficulty; severe emotional problems, personality, home and family. Time and further research have expanded this list to include: intelligence, language development, auditory and visual perception, emotional maturity, social maturity, behavioral attitudes, educational level of the family, and socioeconomic level. Although the latter two are beyond the control of the learner, they need to be identified in a diagnostic appraisal of the whole child (Robinson, 1955).

Chall's 1975 report of the Committee on Reading to the National Academy of Education emphatically decries the notion of any one cause or factor at the root of a reading problem as if it were the sole critical variable. The report declares that there are certain children who are not ready to learn to read at the onset of normal school entrance. A variety of factors needs to be considered in an effort to account for this such as below normal intelligence, slow maturation, lack of adequate preschool language experience, emotional blocks and lack of orientation to school life.

Chall further states that some children have certain characteristics that make it more difficult for them to learn to read. She claims that although research studies in this area are meager, there is research which seems to indicate that the earlier children with reading difficulties are identified and treated, the better they are able to achieve. Their problems stem primarily from their

individual characteristics, and there is a need for individual diagnostic help if these children are to achieve on a level commensurate with their general mental ability.

Many researchers (Bond and Dykstra, 1967; Monroe and Backus, 1937; Robinson, 1955) view reading difficulty as the result of several contributing factors and conclude that the specific pupil characteristic most highly related to reading difficulty appears to vary from one study to the next.

Research has shown that a child's skill or disability in reading is the result of many factors and should be analyzed in light of as much data as can be assembled regarding home environment, child health, social and emotional adjustments, maturity, and intelligence (Shane, 1955).

Research in the Specific Areas Which Cause Reading Difficulty

Language

Ruth Strickland (1969) describes the entire reading process as a process which involves language. She maintains that a teacher needs to be a student of language from the following points of view:

1. She needs to understand language as a human phenomenon and its power in the life of individuals.
2. She needs to know as much as possible about how children learn language before they come to school, the methods they use and the competencies they develop.
3. She needs to give careful attention to the language of each child she is responsible for teaching in order to learn what his language is like and what he can do with it.

4. She needs to comprehend the many ways in which her own language of the reading materials she uses influence the teaching learning process. (p. 43)

She further elaborates on language as a human phenomenon through a description of the work done by Kornei Chukovsky who studied the language of Russian children from the ages of two to five over a period of forty years. He concluded that the child in this short stage of life is a linguistic genius as the basic principles of her/his native language are being mastered.

A review of the process of language acquisition reveals that a typical child living with people who communicate by speaking can imitate and master this great feat without lessons, drills, or programmed materials. By the time most children enter school, they have great facility in using the language of their own environment (Chomsky, 1972; Lenneberg, 1966; Vygotsky, 1962).

A child learns both the phonological, syntactical, and semantic systems of the language and is able to communicate using a variety of words and basic sentence patterns. There is understanding of many words in context and of complex sentences even though the child may not be able to speak them (Loban, 1963; Strickland, 1969).

Studies of children's vocabulary indicate that the average child has at least 2500 words in a speaking vocabulary when entering the first grade and an understanding of vocabulary that may be ten times greater than the spoken language. It is difficult to accurately measure the breadth of a child's language in this age of mass communication. However, many parents are aware of the fact that

their children's acquisition of language is earlier than what they had experienced (Strickland, 1969).

The impact of language on the child is multiformed. It provides information through many modes of presentation; body language, oral speech, reading print, and visual literacy (Weaver and Kingston, 1972).

The ease or difficulty that a child encounters in learning to communicate through language both in and out of school forms a child's competencies and attitudes toward reading (Strickland, 1969). She concludes that language identifies three things about a child:

1. The quality of his language mirrors the language of home and the educational and cultural background of his parents.
2. The meagerness or richness of his real and vicarious experience.
3. The ease with which he expresses himself indicates the wholesomeness of his attitude toward himself; self-respecting, confident, outgoing, or withdrawn, timid, repressed, fearful or belligerent, defensive, and rejecting. (p. 45)

Children have learned "how to learn" the definite stages or sequences of language development, independently and expeditiously prior to school entrance. However, learning to read the language cannot parallel learning to speak because reading is not the same as talking. Written language is not identical with one's own spoken language. Further, speech is a skill that the majority of children inherently desire because it is useful to them while reading is a skill required by the culture (Strickland, 1969).

The fact that reading is a language skill required by the culture may be a causal factor for reading difficulty. Downing (1971)

suggests that cognitive confusion and lack of an innate system for beginning reading is a basic characteristic of reading disability. He has found that children experience difficulty in learning to read because they have only a vague idea about how people read and lack understanding for the purposes of written language.

Anastasiow (1971) views the relationship of oral language and reading behavior as two critical phases. First, the child must discover the regularities of print and develop a decoding system consistent with this code. Second, the child's previous ability to understand speech auditorily is critical to decoding print, as s/he reconstructs the regularities of print with the regularities of stored auditory perceptions of the language. The child must be able to recognize the printed words as her/his own language.

Heilman (1972) emphasizes that the language used in teaching children to read is also quite remote from their experience. He states that overdependence on instructional materials such as basals, strange alphabets, fat cats on mats and overemphasis on decoding or the study of words neglects the power of a rich language background that most children bring to school.

Many researchers have stressed the importance of oral language to reading. The extent to which a child uses the language being read is basic to success. Children having a higher level of oral language performance will do better in reading achievement (Hildreth, 1948; Robinson, 1955; Shuy, 1973; Strickland, 1962; Weaver and Kingston, 1972).

Mitchell (1972) maintains that dialectal differences in language also need to be considered in learning to read. A child's first encounter with reading is not viewed as speech written down. A child's experience has been with the oral mode of receiving information. The child whose dialect is foreign to the group is faced with the task of dealing with the dialects of classmates and teachers. If the child is from another country or a foreign language is spoken in the home, the child is further handicapped in learning to read (Monroe, Marion & Backus, 1937).

Sociological Factors

Many researchers have been concerned with the influence of home environment, social class, and prior experiences to reading (Abrams, 1964; Entwisle, 1971; MacGinitie, 1969; Robinson, 1946; Spache, 1976). Entwisle (1971) declares that evidence is accumulating which indicates that socioeconomic status is a crucial influence on reading performance. She goes on to say that the cluster of variables representing socioeconomic status is viewed as a filter or determiner of cognitive habits and style that regulates all the information processed within the developing human organism.

Vernon (1971) declares that one of the few facts connected with reading achievement of which there is little disagreement is that students from upper socioeconomic classes achieve highest, and that as the social classes decline, reading achievement scores parallel the decline. Eisenberg's (1966) study of reading achievement

illustrates this point of view where the lowest scores were found in the public schools of the metropolitan area and the highest scores in independent private schools.

Vernon also describes the cultural differences between socioeconomic classes and their effect on children's linguistic ability which in turn is related to reading achievement. Even if oral speech developed spontaneously, a child's vocabulary and complex language patterns are learned by imitation of the adults with whom the child is in contact.

Lower class parents employ a restrictive language consisting of mostly short simple sentences mainly in the active voice, with little elaboration of the language. Middle class parents use a more subtle and complex language so that the child becomes aware of a wide range of interpretations, meanings, and discriminations in speaking. A middle class language is also used in schools, therefore, a child within this socioeconomic class does not become confused between a mismatch of language and reading. The lower class child is more likely to feel linguistic confusion and become entangled with a mismatch of her/his own language, the school environment, and reading. It may even threaten their basic values or ideas about the world (Entwisle, 1971; Lewis, 1969; Mitchell, 1972; Vernon, 1971).

Loban (1963) conducted a longitudinal research study of how children vary in ability with language and gain proficiency in using it. He concluded that the relationship between language proficiency and socioeconomic status should not be overlooked. Children reared

in families at the least favored socioeconomic positions receive restricted language experiences. Their early linguistic environment stressed only limited features of language potential, and this could be a disadvantage in schools where the verbal linguistic skills of the middle class prevail. These children may find themselves increasingly ill at ease and self-conscious to the point of avoiding the oral performance of language. This avoidance could, in turn, progressively affect their performance in the related activities of reading.

Cazden (1968) raises a critical issue when he questions the settings and instruments used for assessing a working class child's language competence. "If a child typically responds with a restricted code in settings resembling those of school he may be severely handicapped in learning to read even though he is potentially capable of code switching and using an elaborated code" (p. 601).

Inadequate language experience, lack of care and affection at home, overcrowded conditions, and excessive noise in poverty areas have been contributing factors to reading deficits as reported by Carroll and Chall (1975). The sociological environment can impose limitations for a child when he enters school if his background of experiences have been circumscribed. Everyone is continually experiencing something but if these experiences are limited in number, are constantly being repeated, and are unrelated to the school program, a child may come to school totally unprepared to deal with the school environment. This child may open books to find a strange world which lacks meaning or communication for him.

Prior experiences are an important factor in the research related to reading achievement as Entwisle (1971) and others have cited. High scorers on the California Test of Mental Maturity were read to regularly, books were more readily available, they were taken more places by their parents, and were encouraged to participate in conversations at mealtimes; whereas low scorers were lacking in these experiences and were actively discouraged from engaging in family conversations at mealtimes.

Society seems to have many areas of instability. There is a high incidence of broken homes and internal parental conflicts in cases of severe reading disability. Immigrant populations meet strange living conditions and introduce unfamiliar living conditions into an existing environment. Unhealthy or defensive attitudes often develop where individuals are unfamiliar with the prevailing culture or where cultural differences are viewed as culturally deprived. Entwisle (1971) suggests that large differences also exist among the social and ethnic groups in terms of cognitive style, that is in such things as what is attended to, how problems are viewed and solved, as well as how the language is used.

The lower class child learns to value immediate material rewards and is less willing to delay gratification (Entwisle, 1971). She elaborates by stating that rewards such as verbal reinforcement and positive social relationships towards adults may seem valueless to these children. No doubt they are also less willing to be gratified by the kinds of rewards that are attached to reading success.

Tangible rewards may persuade lower class children to read, whereas, a smile or verbal approval from the teacher may lack meaning.

Reading test performance and socioeconomic status have been shown to be highly related at all levels from first grade through college. The importance of this high correlation is not in understanding that these differences exist but rather in understanding what can be done to correct them (Farr, 1969).

Psychological Processes

There are four types of psychological processes that are involved in the act of reading. The defective functioning of any one of these areas may give rise to difficulty in reading (Vernon, 1971).

1. Visual perception of printed material is a basic and primary process. The child must be able to discriminate simple shapes, patterns, and analyze the complex forms of words. A good visual memory is necessary for success in reading.

2. Auditory-linguistic perception and memory for speech sounds both as whole words and their phonemes are necessary but difficult processes for young children since they tend to apprehend phrases and words simultaneously.

3. The intellectual processes involved are varied and not adequately defined. Conceptual reasoning is often viewed as being involved in understanding written language. That is to say that conceptualizing is essential in associating the visual and auditory aspects of the reading process.

4. Motivational processes must be adequate in strength and direction. A child possessing the ability to perform the cognitive processes may fail unless there is suitable motivation to achieve.

It has been commonly found that correlations of reading achievement and verbal intelligence are higher than those with non-verbal tests (Vernon, 1971). Research has shown that intelligence assessed by I.Q. tests is not genetically predetermined or permanent but rather it is the result of the individual's interaction between his original mental abilities and the environment. For this reason an I.Q. test cannot assess a student's capacity or potential but merely describes the student's present mental performance (Spache, 1976).

Newson and Newson (1968) conducted a study of four-year-olds in an urban community and observed that conversations between mother and child played a vital part in furthering the child's intellectual development. Middle class mothers employed speech in controlling their children. The techniques of explaining, persuading, and reasoning were used in an effort to formulate general principles of behavior.

Below normal intelligence should not be regarded as a casual factor of reading difficulty since educable and bordering ranges of intelligence can attain a minimal level of literacy and often go further than this (Carroll & Chall, 1975). Anderson, Hughes & Dixon (1957) noted that children of low intelligence learn to read at a later age. Those with an I.Q. of 130 or over usually learn to read at about

six and a half, while those with a lower I.Q., below 100, usually learn to read about eight years old. The less intelligent begin later and learn more slowly.

Witty and Kapel (1939) reported that ninety percent of the students identified as poor readers in their study had I.Q.'s from 80 to 110. Most of these poor readers had sufficient mental ability to read satisfactorily when attainable goals were set up.

The validity of personality measures for predicting reading improvement has been a thesis for many research studies. A student's attitude, and his concept of his own ability to perform, may well influence his/her reading performance (Farr, 1969).

The opinions of authorities in the field and the findings of a few experimental studies are agreed that emotional and personality problems might be the cause of reading failure. Even though a child is willing to learn, he may be hampered by emotional immaturity, lack of confidence, and security (Robinson, 1946).

A child's feeling of control for her/his environment and of responsibility for one's own success or failure is especially important in reading (Entwisle, 1971). If the child has not internalized any expectation for herself/himself and can comply only with external demands as they are necessary, then time is spent unproductively. Belmont (1964) and Phares (1968) both report that students learn more, perform better, and are rendered less anxious when aversive stimuli are under their own control or are predictable.

An internally oriented person manifests a higher degree of reading achievement (Allen, Giat & Cherney, 1974; Varanese, 1973). The research of Crandall (1963), recent research by Nowicki and Duke (1973), and Phares (1968) shows that internals persist longer than externals and display a greater need for achievement.

It appears that socioeconomic factors also affect a student's locus of control. Coleman (1966) found that children from advantaged groups assume that the environment will respond to their needs. Children from disadvantaged groups do not make the same assumption. In most cases, they assume that nothing they do can affect the environment. Hess and Shipman (1965) found that the more a mother feels externally controlled when her child is four years old, the more likely her child is to make a poor academic record upon entering school.

Conceptual tempo has been widely accepted and studies have shown that this is an important new dimension of intellectual development (Hall and Russell, 1974). The conceptual style of a child is described in terms of whether objects or pictures are associated analytically or relationally. The analytic child has a tendency to delay her/his response more than a child who associates by means of relational concepts. Kagan (1965) states that a child who is apt to respond quickly in difficult problem situations will more likely produce an incorrect response than the child who will reflect over several solutions and consider the accuracy of his response.

Kagan (1965) found that measures of conceptual tempo gathered in first grade were predictive of reading improvement one year later. In general, children classified as impulsive in the first grade had the highest error scores at the end of second grade.

Teacher Expectation

Several researchers have addressed the topic of teacher expectations for children or a belief in their capacity for reading as an influential factor to be considered in assessment. There are both positive and negative effects shown in the literature.

Haring and Ridgway (1967) showed the positive dimension where they found that teachers' ratings were more predictive of a child's potential learning disability than the results of some test batteries. Satz and Friel (1974) found that teacher ratings of reading ability revealed predictive classification for 497 kindergarten boys two years later that were equally good for both high and low risk children.

Katz (1968) showed a negative dimension to this issue where he found that the hostile and defeating attitudes of teachers toward students in ghetto schools was a cause of low achievement among minority group children. The children learned rapidly that they were expected to fail and they succeeded in achieving this expectation.

Myklebust (1971) saw the widespread need in education for a more accurate system to screen and identify learning deficits. To secure data on the problem, a number of screening tests were administered simultaneously to the same population. Statistical comparisons were made with a pupil rating scale and other measures

of learning. Myklebust found that a teacher's early perception of learning disabilities may be more efficient and effectively used when the teacher is supplied with rating format on specific behaviors that are well defined.

Summary

This review of the research literature in reading has shown that the causes of reading difficulty are from a multiplicity of factors. Some of these factors are language, sociological, psychological, and teacher expectation. There is a need to assess the learning characteristics of each child and to determine the ways in which each child can experience success in reading.

CHAPTER III

DESIGN OF THE STUDY

Purpose

This study was concerned with identifying a variety of factors related to reading achievement and with finding the relationship of these factors in a group of fourteen low achieving first grade students. The characteristics of this group of students are described via data gathered on a number of variables related to reading. These data were analyzed to identify those characteristics which show similarities or differences within the group. A second part of the study relates these characteristics to a criterion variable, reading achievement, and a third part presents individual profiles of the fourteen students together with an analysis of individual performances.

Methodology

Population

The population consisted of fourteen first grade students from two heterogeneously grouped self-contained classrooms in a middle income suburban school district. This group had been identified as PSEN students or "pupils with special educational needs." These children were identified as high-risk learners for any or all of the following reasons: they scored below the thirty-fifth percentile on the Metropolitan Reading Readiness Test at the

end of kindergarten; they scored in the bottom third of the students tested by the Early Primary Language Development Screening Instrument; or their kindergarten teacher perceived them as not ready for first grade reading. The children ranged in ages six years and five months to seven years and two months.

Variables Included in the Study

Thirty-eight scores were obtained for study based upon the review of literature reported in Chapter Two. The original list of scores was used for preliminary analyses to identify the variables included in the study. This list (see Appendix B) was subsequently reduced to eighteen by eliminating subtests and redundant scores. The remaining eighteen scores became the variables reported in this study. They are as follows:

Reading Variables

1. Reading readiness
2. Reading achievement

General Aptitude

3. Knowledge of basic concepts
4. I.Q.

Language Variables

5. Language development screening
6. Receptive language
7. Expressive language
8. Auditory attention span

Teacher Ratings of Personal Characteristics

9. Spoken language
10. Auditory comprehension
11. Personal-Social behavior
12. Orientation

Psychological Variables

13. Locus of control
14. Conceptual tempo

Socioeconomic Variables

15. Number of employed parents living in the home
16. Father's occupation
17. Number of children living in the home
18. Number of languages spoken in the home

Instruments Used in the Study

1. Metropolitan Readiness Tests, Form A. New York: Harcourt Brace Jovanovich, 1970.

This instrument is used to measure the extent of several skills and abilities a student has developed for beginning first grade instruction. It is designed for testing at the end of kindergarten or the beginning of first grade.

The subtests of this test are:

Test 1: Word Meaning - this is a picture vocabulary test which measures the breadth of a child's verbal concepts.

Test 2: Listening - this test measures a child's receptive knowledge of his world by presenting the child with three pictures

and an auditory statement about one of the pictures. The child indicates an understanding of the statement by marking one of the pictures.

Test 3: Matching - this test correlates well with beginning reading. It assesses visual perception which is involved in discriminating word forms that are necessary for beginning reading.

Test 4: Alphabet - the ability to recognize letters is one predictor of success in the early stages of reading. A low score on this test indicates that a child may need special assistance in attending to the formal characteristics of words.

Test 5: Numbers - this measure has repeatedly been shown to be the most powerful single predictive subtest of the earlier editions of Metropolitan Reading Readiness Tests.

Test 6: Copying - this subtest measures a child's visual perception and motor control. Scores for this instrument are indicated by a raw score for each subtest, total readiness score, percentile rank, and a letter rating.

2. Metropolitan Achievement Tests, Primary I, Form F. New York: Harcourt Brace Jovanovich, 1970.

This instrument is a standardized test designed to assess student achievement in various basic skills. This form includes the following subtests:

Test 1: Word Knowledge - this part of the test measures a student's sight vocabulary or word recognition ability.

Test 2: Word Analysis - this part of the test measures a student's skill in sound symbol relationships.

Test 3: Reading - this subtest is divided into two parts: part A measures a student's skill in sentence comprehension and part B measures the student's skill in paragraph comprehension.

Raw scores for this instrument are converted into standard scores, percentile ranks, and grade equivalents.

3. Boehm Test of Basic Concepts. New York: The Psychological Corporation, 1971.

The child's knowledge of individual concepts that are essential in the school environment is assessed by this instrument. Test results may be used to identify children with deficiencies and who will need special attention. Test items were selected from relevant curriculum materials and represent concepts that are basic to understanding directions and other oral communications from teachers at the preschool and primary level.

4. Slosson Intelligence Test for Children and Adults, Richard Slosson, East Aurora, New York: 1963.

This test is easy to administer as a substitute for the more lengthy individual I.Q. tests such as the Stanford Binet. It is highly verbal and contains a measurable range from preschool to adult mental ability. Many studies support its use with normal children rather than for children who differ in racial, socioeconomic, linguistic, or cultural backgrounds.

5. Early Primary Language Development Screening Program, Unpublished manuscript, Rochester, N.Y., Speech Department, Gates-Chili Central School District; 1975 (See Appendix C).

This language screening instrument was designed by the Gates-Chili speech therapist to facilitate the identification of kindergarten and first grade children with deficits in communication skills. This informal language screening battery consists of the following:

Test 1: Receptive Vocabulary - measures a child's ability to identify spoken words. The purpose of this test is to gain an idea of the extent of the child's vocabulary. The child is asked to choose from three pictures the one which corresponds to the word spoken by the teacher.

Test 2: Auditory Sequential Memory - measures the child's ability to focus attention on and retain auditory stimuli. The child is asked to choose from four pictures the one which corresponds to the words and phrases spoken by the teacher.

Test 3: Sound Blending - measures a child's ability to blend a series of sounds into a meaningful pattern. The child is asked to choose from among four pictures the one which corresponds to the series of sounds spoken by the teacher.

Test 4: Auditory Discrimination - measures a child's ability to note subtle differences among auditory stimuli. The child is asked to choose from among the pairs of pictures the pair which corresponds to the words spoken by the teacher.

Scores on this instrument are recorded as a raw score for the number of errors on each subtest and a total number of errors on the entire screening test.

6. The Test of Cognition, Unpublished manuscript. Estelle L. Fryburg, Manhattan College, Bronx, New York: 1972 (See Appendix D).

This instrument is an informal instrument designed to evaluate a child's receptive and expressive language ability. There are four subtests in this instrument but only the third part, syntactic patterning, was chosen to be used for this study. In this subtest a child demonstrates his/her ability to receive a message and associate it with a picture and also to express a message received by responding with the syntactically correct sentence.

The raw score for this test is equivalent to the number of correct responses.

7. "Auditory Attention Span for Related Syllables" of the Detroit Test of Learning Aptitude (Test 13) Indianapolis, Ind.: Bobbs-Merrill Co. Inc., 1958.

A series of 43 sentences ranging from short to longer sequences or from five words of six syllables to twenty-two words with twenty-seven syllables. This test is a practical measure of a student's mental ability to attend to messages that are received. The Detroit Test Manual (1967) describes the significance of auditory attention:

> Both in and out of school auditory attention underlies the functioning of intelligence to such an extent that weakness in it may constitute a major handicap. Learning is dependent

> to a great extent upon listening for directions. Whenever it is not perfectly comprehended the attendant meanings and relationships are also missed. (p. 114)

8. The Pupil Rating Scale: Screening for Learning Disabilities. Helmer Myklebust, New York: Grune and Stratton, 1971.

This instrument was devised as a carefully defined and delineated measure for teachers to identify children who have good mental ability, good hearing and vision, adequate emotional adjustment, and motor ability, but who do not achieve normally in school.

The ratings reflect success or failure in learning effectiveness rather than intellectual capacity in: spoken language, auditory comprehension, personal-social behavior, and orientation.

9. The Preschool and Primary Form of the Nowicki-Strickland Locus of Control. S. Nowicki/M. Duke, Emory University, Georgia: 1973 (See Appendix E).

This instrument is designed to measure internality and externality in younger children. There are 40 items presented in a cartoon type format. Each item asks a question for the student to respond with a yes and no depending on how the child feels about the situation.

The score is the total number of items answered in an externally controlled direction. A raw score and letter identification (E = externality, or I = internality) is assigned to each child.

10. Matching Familiar Figures. Unpublished manuscript. Jerome Kagan, Harvard University, Boston, Mass.: 1964 (See Appendix F).

This instrument was designed by Jerome Kagan to identify conceptual tempo in children from grades one to four. There are fourteen items in the test. For each item the child is shown a standard picture and six similar ones. Only one of the six is identical to the standard. The subject selects the one that is identical to the standard while the examiner records the response time in seconds for each first selection. If the child makes an error the examiner points to the standard picture and repeats, "find a picture just like this one," until a correct response is made.

11. Information on the following socioeconomic variables was obtained from school records (See Appendix G).

a. Number of employed parents living in the home.

b. Father's occupation.

c. Number of children living in the home.

d. Number of languages spoken in the home.

The socioeconomic status of father's occupation was assessed using the Socioeconomic Status Rating Scale (Russ, 1961). This scale ranges from 0 to 99 (See Appendix H).

Data Gathering Procedures

The data for this study were gathered between March, 1977, and June, 1977, according to the following procedure:

1. Information was collected from the students' permanent records which included:

A. Ten scores on the Metropolitan Reading Readiness Test which had been administered May, 1976, to this group of students at the end of their kindergarten year in school. These scores are the total raw score, word meaning, listening, matching, alphabet, numbers, copying, total percentile score, letter rating, and draw-a-man.

B. Five values for the Early Primary Language Development Screening were recorded as the raw score for the number of errors made on: receptive language, auditory memory, sound blending, auditory discrimination, and total score.

This screening instrument had been administered to each student during the Spring of 1976.

C. Next, four socioeconomic variables were recorded which included the number of employed parents living in the home, father's occupation, number of children living in the home, and number of languages spoken in the home. Father's occupation was then given a numerical rating according to the socioeconomic index found in Russ (1961).

2. The Boehm Test of Basic Concepts was administered to small groups at one sitting. This instrument added two scores to the study: a total raw score, and a percentile score based on low, middle, and high socioeconomic status.

3. The two classroom teachers were asked to rate their students on specific behavioral characteristics. A total raw score for each of the variables: spoken language, auditory comprehension, personal and social behavior, and orientation were added to the design from the Pupil Rating Scale: Screening for Learning Disabilities.

4. The Preschool and Primary Form of the Nowicki-Strickland Locus of Control Scale was administered to each student in one setting. The researcher read each cartoon shown to the student being tested and recorded the yes or no response for the child. Children were asked to respond to what they believed to be true for themselves and were told that there was no correct response. The answers were keyed to a raw score for externality. Subsequently, each student was classified as 2 for externality, 1 for internality, or 3 for an equal number of external and internal responses.

5. Kagan's Matching Familiar Figures Test was used to provide a measure for conceptual tempo. This instrument was administered to each student who was shown a single figure and was asked to match this figure with one of the six similar figures on the adjacent page. The examiner recorded the time needed for the first response and the order in which the student matched the figures until the correct match was made. Four scores for this test were obtained initially; the number of correct responses on the first try, total number of errors, average length of time for the first response, and identification of 1 for impulsive and 2 for reflective.

6. The receptive and expressive language sections of the Test of Cognition, developed by Dr. Estelle Fryburg, were given individually to the students in this study, in one sitting. A raw score for each variable in this test became a part of the design.

7. "Test 13, Auditory Attention Span for Related Syllables," of the Detroit Test of Learning Aptitude was given in one sitting with each student. This consisted of a series of 43 sentences ranging from five words of six syllables to 22 words with 27 syllables. The examiner said each sentence slowly and distinctly, and the student repeated the sentence while the examiner recorded the student's response. When the student failed three sentences in succession, the test was completed. Norms for this variable were recorded as mental ages which are provided in the scoring guide of the test.

8. A measure of intelligence was derived from the Slosson Intelligence Test which was used as an individual screening tool for these children. This variable was recorded as the I.Q. score assessed by this instrument.

9. Lastly, the Metropolitan Achievement Test Primary Form I was administered in their classrooms to the entire first grade class. A grade level score for word knowledge, word analysis, and total reading became the last three variables of this design.

Statistical Analysis

Each variable in the study was assigned a code number (Appendix B) and a master chart was made for recording individual

scores. Subsequently, a Hollerith card was key punched for each student using the information from the master chart.

The 1130 library program termed CORAL from the SUNY Brockport's Computing Center was used to find the similarities and differences among this group of low achieving students. Then, the ratio of standard deviation to the mean, $SD/\overline{X}$, was calculated for each variable.

A rule of thumb was established from precedents established in standardized testing. Standard deviations of typical tests tend to run from .15 ($\overline{X}$ = 100, S.D. = 15) of the mean on I.Q. tests to .20 ($\overline{X}$ = 500, S.D. = 100) on typical achievement tests such as the Scholastic Aptitude Test. Therefore, the following guidelines were used for the SD/M:

.20 or below = very good degree of similarity

.20 to .25 = good degree of similarity

No attempt was made to establish what SD/M constitutes a reasonable difference. The remaining variables were classified as characteristics on which the group differed and were rank ordered from most variable to least variable.

The findings for this group of low achieving students on each variable were compared to related normative data where it was available.

Each of the listed variables was related to the criterion variable, reading, using the Pearson's Product Moment correlational statistic. An 18 x 18 correlational matrix was calculated by the

Computing Center Library program CORAL. An analysis of these findings was made to show those variables having a positive or inverse relationship to reading.

Lastly, a profile for each student is presented to show the individual student's score in relationship to this group and to a normative population if available.

Summary

This study was designed to identify factors that are related to reading achievement and with finding the relationships of these factors in a group of 14 PSEN students. Eighteen variables and data gathering procedures were selected for study: reading readiness, reading achievement, basic concepts, I.Q., language development screening, receptive and expressive language, auditory attention span for related syllables, teacher ratings of spoken language, auditory comprehension, personal-social behavior, and orientation, locus of control, conceptual tempo, number of employed parents living in the home, father's occupation, number of children living in the home, and number of languages spoken in the home.

After the data were collected, statistical analyses were performed using the SUNY Brockport Computing Center's library programs. The analysis included the similarities and differences within the group, the relationship of each variable to the criterion variable reading, and an individual profile with analysis for each student.

CHAPTER IV

RESULTS OF THE STUDY

The results of this study are presented in three sections. The first two sections consist of group data while the third section presents individual findings. The first section is a summary of findings on similarities and differences among this group of low achieving readers. In the second section, data on the relationship of a number of variables to the criterion variable, reading achievement, are presented. The third section presents individual profile data with interpretation.

A Summary of Similarities and Differences

The results obtained from an investigation of two specific questions are presented in this section: (1) In what way are these low-achieving readers similar? and (2) In what way are they different? Whenever possible normative data are also provided so that the group as a whole can be compared to the population at large.

In order to answer the two questions above; means, standard deviations, and the ratio of standard deviation to the means ($SD/\overline{X}$) were calculated for each of the eighteen variables included in the study. These data are presented in Table 1. The determination of what constitutes similarities or differences is of necessity evaluative and was operationalized by the researcher. A rule of thumb was established from precedents established in

TABLE 1

Means, Standard Deviations and SD/$\overline{X}$ Ratios

for this group of Low Achieving Readers

Characteristic	$\overline{X}$	S.D.	SD/$\overline{X}$
IQ (Slosson)	111.429	12.470	0.112
Personal Social Rating	22.142	2.476	0.112
Receptive Language	14.357	1.737	0.121
Reading Achievement	1.400	0.184	0.132
Orientation Rating	9.429	1.697	0.180
Auditory Comprehensive Rating	9.643	1.781	0.185
Locus of Control	13.643	2.977	0.218
Reading Readiness	48.571	10.768	0.222
Spoken Language Rating	12.000	2.689	0.224
Expressive Languge	15.071	3.562	0.236
Auditory Attention Span	6.393	1.711	0.268
Basic Concepts	80.429	22.356	0.280
Employed Parents	1.500	0.519	0.346
Socioeconomic Status	38.929	14.467	0.372
Conceptual tempo (latency)	11.114	4.293	0.386
Number of Languages in home	1.357	0.633	0.466
Language screening (errors)	9.857	6.298	0.639
Number of Children in home	4.143	4.222	1.019

standardized testing (see Chapter III). Using a rule of thumb that a value with a ratio SD/M of .20 or below indicated a very good degree of similarity and a ratio SD/M of .20 to .25 indicated a good degree of similarity, the following results were obtained.

The 14 PSEN's were most alike on the following variables in rank order:

IQ as measured by the Slosson Intelligence Test. (0.112)

Personal social behavior as measured by teacher ratings on the Myklebust Pupil Rating Scale. (0.112)

Receptive language as measured by the Fryburg Test of Cognition. (0.121)

Reading Achievement as measured by the Metropolitan Achievement Test. (0.132)

Orientation as measured by teacher ratings on the Myklebust Pupil Rating Scale. (0.180)

Auditory Comprehension as measured by teacher ratings on the Myklebust Pupil Rating Scale. (0.185)

The 14 PSEN's were less alike on the following variables but were homogeneous enough to meet the second criteria of .20 to .25 ($SD/\overline{X}$).

Locus of control as measured by the Nowicki-Strickland Pre School and Primary Form. (0.128)

Reading readiness as measured by the Metropolitan Readiness test. (0.222)

Spoken language as measured by teacher ratings on the Myklebust Pupil Ratings Scale. (0.224)

Expressive language as measured by the Fryburg Test of Cognition. (0.236)

These 14 students were most different on the following variables in rank order.

Number of children in the home as obtained from permanent records. (1.019)

Number of errors on the Language Screening Test as measured by the Early Primary Language Screening Instrument. (0.639)

Number of languages spoken in the home as obtained from school records. (0.466)

Conceptual tempo (latency) as measured by the Matching Familiar Figures Test. (0.386)

Socioeconomic status as determined by Duncan's Index of Father's occupation. (0.372)

Number of employed parents as determined from school records. (0.346)

Basic concepts as measured by the Boehm Test of Basic Concepts. (0.280)

Auditory Attention Span as measured by subtest 13 of the Detroit Test of Learning Aptitude. (0.268)

The results of this analysis indicate that the students were most alike on IQ, personal-social behavior, receptive language, reading achievement, orientation, and auditory comprehension. They

were least alike on number of children in the home, number of errors in language screening, number of languages spoken in the home and the latency dimension of conceptual tempo. Data on two of the variables, number of children in the home and number of languages spoken in the home, are probably misleading due to the skewed distribution of the former and the restricted range of the latter.

Summary Statistics and Normative Data

In this section summary statistics and normative data provided on the variables in order of their presentation on Table 1.

The following data are provided for those variables where a high degree of similarity was present.

1. IQ

Findings, this study		Related data[1]	
Range:	100 - 138	Range:	30 - 200
Mean:	111.429	Mean:	100
S.D.:	12.470	S.D.:	25

The findings indicate the PSEN group is high average in IQ. It should be noted that the Slosson does tend to overestimate when compared with other individual IQ tests.

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[1]From the manual of the Slosson Intelligence Test - National Norms.

2. Personal-social Behavior

Findings, this study		Related data[2]	
Range:	18-26	Range:	8 - 40
Mean:	22.14	Mean:	26.31
S.D.:	2.48	S.D.:	6.09

These results indicate that the mean rating for the PSEN group is approximately four points below the mean of the normative group. This in all probability is an educationally significant difference.

3. Receptive Language

Findings, this study		Related data[3]	
Range:	10 - 17	Range:	0 - 20
Mean:	14.36	Mean:	-
S.D.:	1.74	S.D.:	-

The lack of standardized data makes it impossible to judge the performance of the group on this variable.

4. Reading Achievement

Findings, this study		Related data[4]	
Range:	1.0 - 1.7	Range:	1.0 - 3.9
Mean:	1.40	Mean:	1.9
S.D.:	0.18	S.D.:	N.A.

The results indicated that the group as a whole is about one-half below grade level in reading achievement.

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[2]From the manual, Myklebust Pupil Rating Scale norms.

[3]No standardization data available at this time.

[4]From the manual, Metropolitan Achievement Test.

5. Orientation

Findings, this study		Related data[5]	
Range:	5 - 11	Range:	4 - 20
Mean:	9.43	Mean:	13.35
S.D.:	1.70	S.D.:	3.03

The PSEN group as a whole is rated approximately four points below a normative group of 2176 boys.

6. Auditory Comprehension

Findings, this study		Related data[6]	
Range:	7 - 12	Range:	4 - 20
Mean:	9.64	Mean:	12.75
S.D.:	1.78	S.D.:	3.53

The PSEN group scored about three points below the normative group on this variable when rated by their teacher.

The following data are provided for those variables where a good degree of similarity was present.

7. Locus of Control

Findings, this study		Related data[7]	
Range:	9 - 19	Range:	0 - 26
Mean:	13.64	Mean:	M = 11.45 F = 11.45
S.D.:	2.98	S.D.:	M = 2.81 F = 2.902

---

[5]From Pupil Rating Scale Manual (2176 boys).

[6]From Pupil Rating Scale Manual (2176 boys).

[7]From Manual, Nowicki Strickland PreSchool and Primary Locus of Control, age norm 7.5.

These findings indicate that this PSEN group scored approximately two points higher on the PreSchool and Primary Form of Locus of Control than does the general population. Higher scores indicate feelings of external control.

8. Reading Readiness

Findings, this study		Related data[8]	
Range:	29 - 63	Range:	1 - 99
Mean:	48.57	Mean:	50
S.D.:	10.77	S.D.:	NA

These findings indicated very little difference between the PSEN group and the population at large.

9. Spoken Language

Findings, this study		Related data[9]	
Range:	7 - 16	Range:	5 - 25
Mean:	12.000	Mean:	15.89
S.D.:	2.69	S.D.:	3.80

These findings show the PSEN group to be approximately six points below the normative group.

---

[8]From Manual, Metropolitan Reading Test.

[9]From Pupil Rating Scale, Manual

10. Expressive Language

Findings, this study		Related data[10]	
Range:	7 - 19	Range:	0 - 20
Mean:	15.07	Mean:	NA
S.D.:	3.56	S.D.:	NA

The following data were obtained on the variables on which the individuals were most different.

1. Number of children

Findings, this study		Related data[11]	
Range:	1 - 18	Range:	NA
Mean:	4.14	Mean:	2 (estimation)
S.D.:	4.22	S.D.:	NA

The statistics in this analysis are inflated by the existence of one family in the PSEN group with 18 children.

2. Number of errors in language screening

Findings, this study		Related data[12]	
Range:	4 - 21	Range:	0 - 60
Mean:	9.86	Mean:	NA
S.D.:	6.30	S.D:	NA

---

[10]Normative data not yet available.

[11]Not available.

[12]No norms available.

3. Number of languages spoken in the home

Findings, this study		Related data[13]	
Range:	1 - 3	Range:	NA
Mean:	1.36	Mean:	NA
S.D.:	.63	S.D.:	NA

The actual distribution is ten families with one language, three families with two languages, and one family with three languages. Thus, a majority of families are unilingual.

4. Conceptual tempo (latency)

Findings, this study		Related data[14]	
Range:	6.8 - 22.4	Range:	1 - [illegible]
Mean:	11.11	Mean:	8.51
S.D.:	4.29	S.D.:	3.95

The results indicate the PSEN group takes about two and one-half seconds more per initial response than the norm group of 85 boys. There is, however, a two grade-level difference.

5. Socioeconomic status

Findings, this study		Related data[15]	
Range:	21 - 77	Range:	1 - 99
Mean:	38.93	Mean:	NA
S.D.:	14.47	S.D.:	NA

---

[13]Normative data not available.

[14]From manual, 85 white third grade boys.

[15]Not available.

6. Number of employed parents

Findings, this study		Related data[16]	
Range:	1 - 2	Range:	0 - 2
Mean:	1.50	Mean:	NA
S.D.:	.52	S.D.:	NA

7. Basic Concepts

Findings, this study		Related data[17]	
Range:	20 - 99	Range:	1 - 99
Mean:	80.429	Mean:	50
S.D.:	22.356	S.D.:	NA

These results indicate the group as a whole scored more than 30 percentile points above a normative group.

8. Auditory Attention Span

Findings, this study		Related data[18]	
Range:	4.6 - 9.9	Range:	3 - 19
Mean:	6.393	Mean:	-
S.D.:	1.711	S.D.:	-

Other Findings

Two psychological variables used in the study are locus of control and conceptual tempo. Using the classification procedures described in Chapter III the following data was obtained.

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[16]Normative data not available.

[17]From the Boehm test of Basic Concepts Manual.

[18]From the Detroit test of Learning Aptitude Manual.

Number of Externals:	10
Number of Internals:	4
Number of Reflective Children:	5
Number of Impulsive Children:	9

Relationship of Each Continuous Variable to the Criterion Variable - Reading Achievement

An 18 x 18 correlational matrix was calculated using the college's Computing Center Library Program CORAL. The results of this computation are included in Table 2. These results indicate a number of variables having high correlations with reading achievement, namely locus of control, number of languages spoken in the home, receptive language, and two of the Myklebust Scales. Two of these variables, locus of control and number of languages spoken in the home, are statistically significant at the .05 level (.51 req. with 13 degrees of freedom).

Tables 3 and 4 show this data categorized into lists which show positive and inverse relationships with the criterion variable respectively.

It seems reasonable to state that the obtained coefficients are probably underestimating the true relationship. This circumstance would be due to a restricted range on the criterion variable, reading achievement, which varied only from a grade equivalent of 1.0 to 1.7.

TABLE 2

Pearson Product Moment Correlations of All Variables with Reading Achievement

Variable	Correlation Coefficient
Locus of Control	.58*
Number of Languages Spoken in home	.53*
Receptive Language	-.46
Spoken Language	-.42
Personal-Social Behavior	-.40
Auditory Attention Span	-.36
Number of Children in Home	-.34
Auditory Comprehension	-.26
Number of Employed Parents	-.24
Reading Readiness	+.23
Orientation	-.22
Language Screening Errors	+.20
Basic Concepts	-.18
Socioeconomic Status	.16
Conceptual Tempo (latency)	-.12
Expressive Language	.04
I.Q.-Intelligence	.02

* $p < .05$

Table 3

Variables Showing a Positive Relationship

to the Criterion Variable

Variable	r
Locus of Control	.58
Number of Languages Spoken in Home	.53
Reading Readiness	.23
Language Screening	.20
Socioeconomic Status	.16
Expressive Language	.04
I.Q.-Intelligence	.02

Table 4

Variables Showing an Inverse Relationship

to the Criterion Variable

Variable	r
Receptive Language	-.46
Spoken Language	-.42
Personal-Social Behavior	-.40
Auditory Attention Span	-.36
Number of Children in Home	-.34
Auditory Comprehension	-.26
Number of Employed Parents	-.24
Orientation	-.22
Basic Concepts	-.18
Conceptual Tempo (latency)	-.12

The data were further analyzed to find responses to the specific research questions stated in Chapter One. These questions and the results from the data are as follows:

1. What is the relationship of expressive language and reading performance?

   $r = -.46$

   The correlation coefficient of -.46 indicates a moderately strong inverse relationship of expressive language to reading. Within this group, the higher one scores on expressive language, his reading achievement will be proportionately lower.

2. What is the relationship of receptive language and reading performance?

   $r = .04$

   The coefficient of .04 indicates a purely random relationship.

3. What is the relationship of Basic Concepts and reading performance?

   $r = -.12$

   The coefficient indicates a very low inverse relationship.

4. What is the relationship between their teacher's perceptions of their capabilities and reading performance?

Spoken Language	$r = -.42$
Auditory Comprehension	$r = -.26$
Personal-Social Behavior	$r = -.41$
Orientation	$r = -.22$

These coefficients all indicate an inverse relationship to reading achievement meaning the higher the teacher rates the student, the more likely the student is to get a proportionately lower reading performance score.

5. What is the relationship of locus of control and reading performance?

   $r = .58$

   This coefficient indicates a significantly high positive relationship with reading performance. Persons scoring high in the external direction tended to score high in reading achievement.

6. What is the relationship of conceptual tempo (latency) and reading performance?

   $r = .36$

   This coefficient indicates a moderately strong positive relationship indicating that as one increases the time taken for initial response to a stimulus, he is likely to show a proportionate increase in reading achievement.

7. What is the relationship of mental ability (IQ) and reading performance?

   $r = .02$

   The coefficient of .02 indicates no identifiable relationship between the two variables.

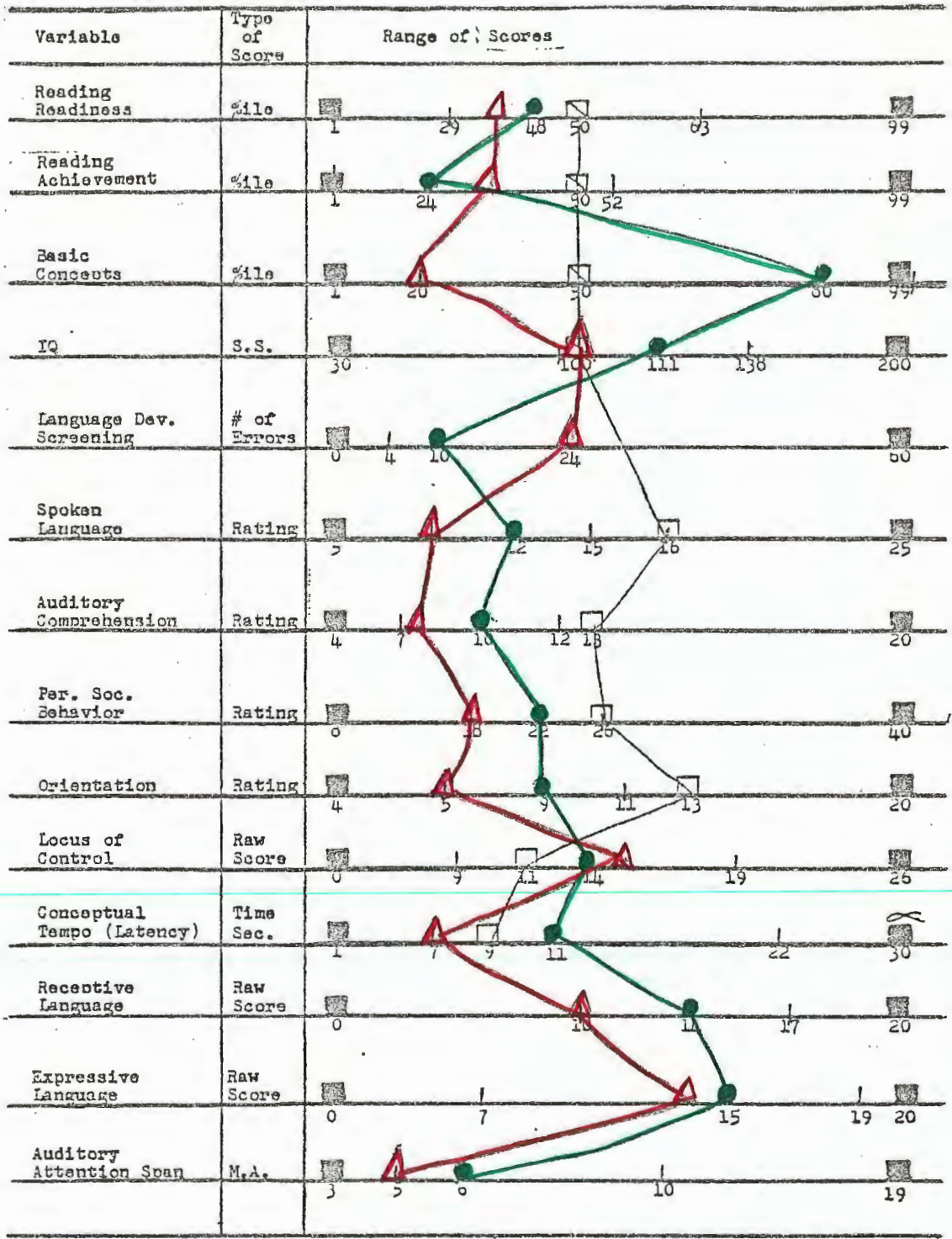
8. What is the relationship of socioeconomic status and reading performance?

   $r = -.24$

This coefficient indicates a weak inverse relationship of SES to reading performance.

Individual Profiles

On the following pages, a graphic profile and verbal interpretation is presented for each student in the study. This information communicates the child's score for each variable in this study as it compares to this group's mean and the national mean where it is available.



= Child's score

= National Median

= National Mean

= $\bar{X}$ of PSEN Group

= Range of Scores - PSEN Group

= Range of Possible Scores

Socioeconomic Variables

No. of Employed Parents at Home	1
Father's Occupation	77
No. of Children Living at Home	2
No. of Languages in Home	1

The student identified as 001 scored slightly below this group mean or the national mean on the reading readiness measure. He continued to score below the national mean but above this group's mean on the reading achievement measure.

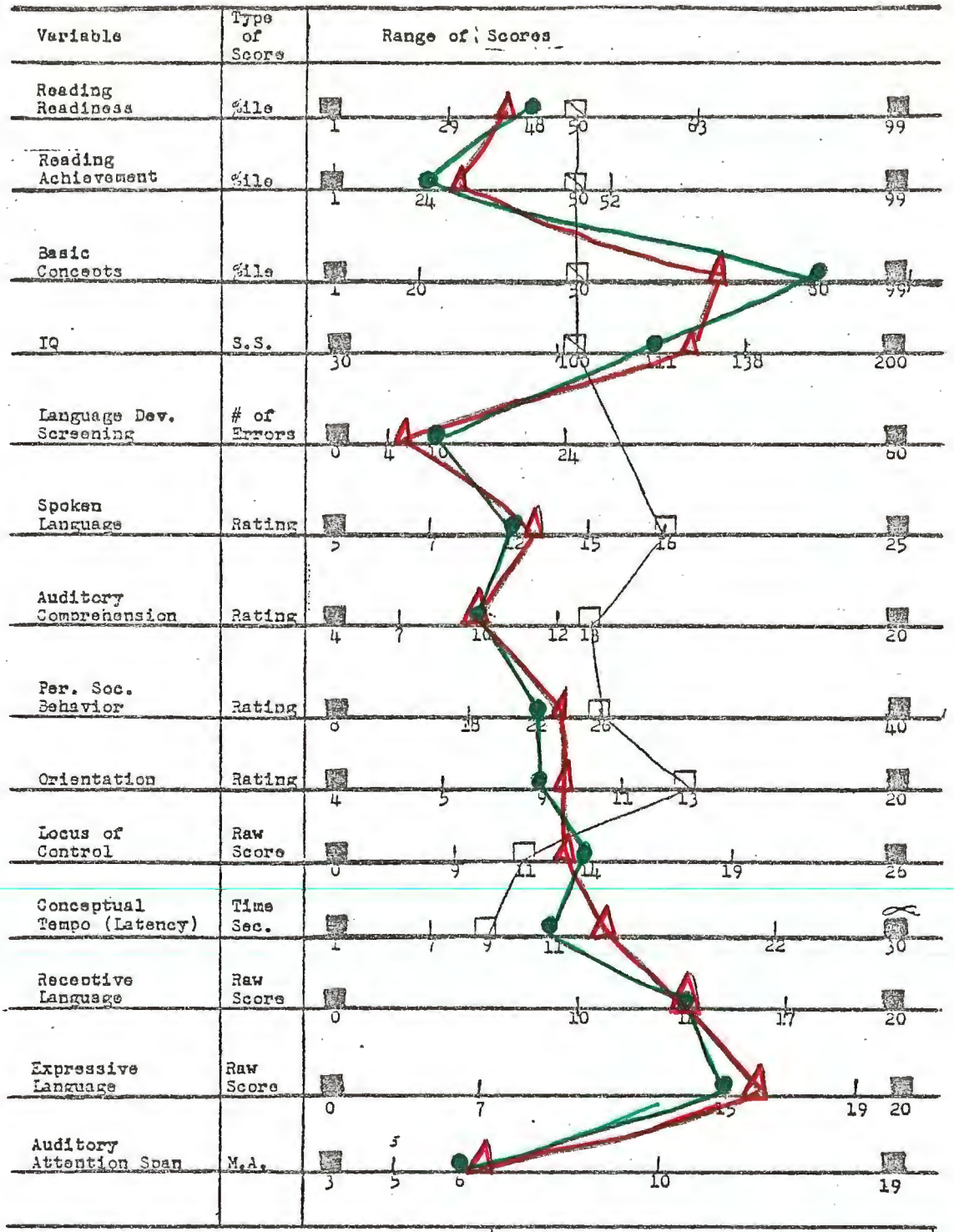
The general aptitude measures indicate that his basic concepts score was the lowest for this group. His I.Q. score of one hundred is equivalent to the national mean.

He was among those making a high number of errors on the Primary Language Development Screening Test. Other language measures used in this study indicate that his receptive and expressive language scores are below the mean for this group. He demonstrated a mental age of five years in his auditory attention span for related syllables.

This child's teacher rated his spoken language, auditory comprehension, personal-social behavior, and orientation lower than the mean for this group or national mean.

He sees himself as an externally controlled person and displayed an impulsive learning style on the conceptual tempo measure used in this study.

His father is the only employed parent. His occupation was rated at seventy-seven on the Socioeconomic Status Rating Scale (see Appendix H) for occupations. There are only two children in this monolingual family.



Socioeconomic Variables

No. of Employed Parents at Home	2
Father's Occupation	21
No. of Children Living at Home	2
No. of Languages in Home	2

The student identified as 002 scored slightly below this group mean or the national mean on the reading readiness measure. He continued to score below the national mean but above this group's mean on the reading achievement measure.

The general aptitude measures indicate that his knowledge of basic concepts are midway between this group mean and national mean. His I.Q. score of one hundred fourteen places him above both this group and the national mean.

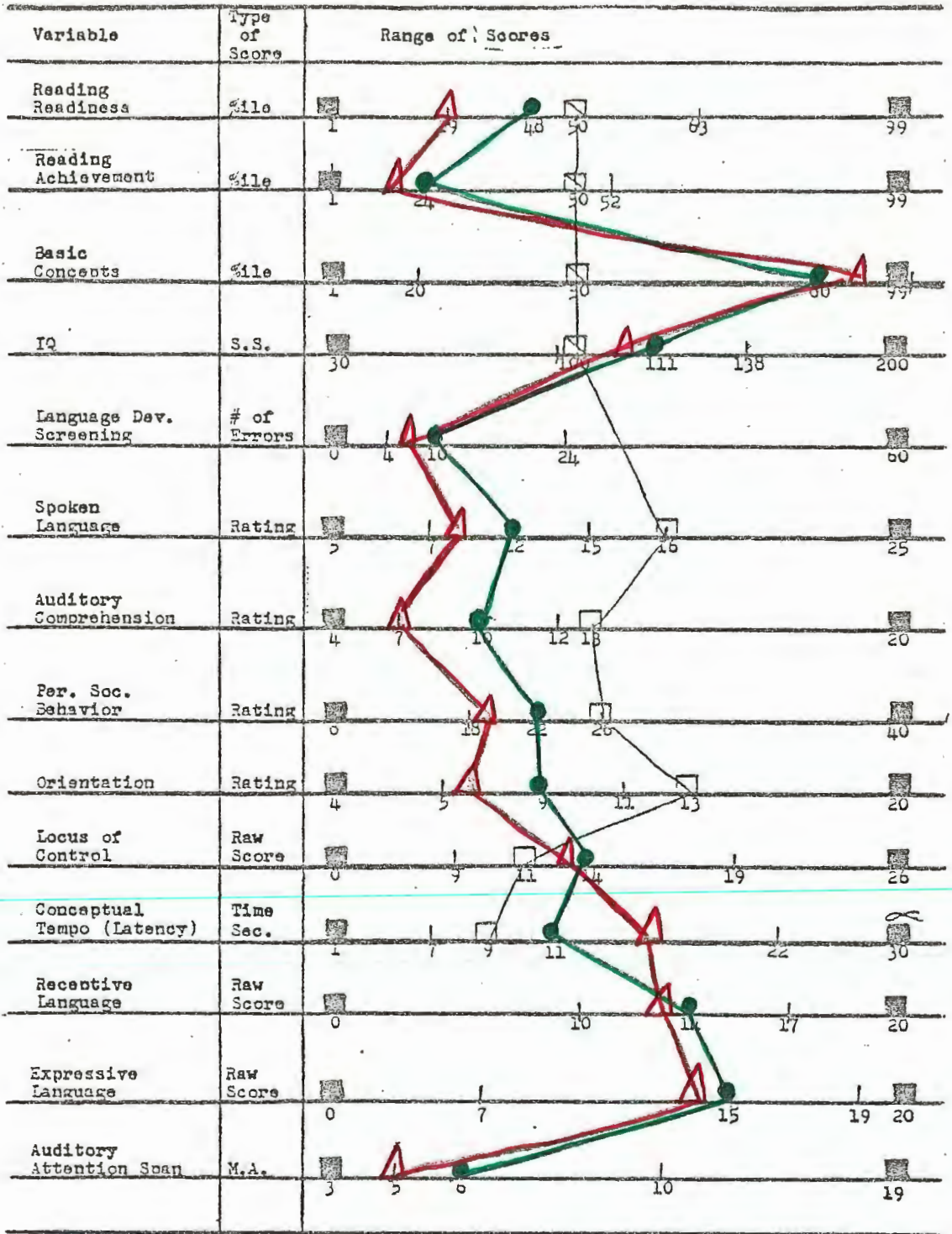
At the end of kindergarten, he scored below the mean in number of errors on the Language Development Screening Test. His receptive language score was equivalent to the mean for this group and expressive language was above the mean. He demonstrated a mental age of six years six months in auditory attention span for related syllables.

This child's teacher rated him at the mean for this group in auditory comprehension and slightly above the mean in spoken language, personal social behavior, and orientation. However, each of these scores are below the national mean.

He sees himself as being both externally and internally controlled and demonstrated a reflective learning style on the conceptual tempo measure used in this study.

Both parents are working in this family. Father's occupation was rated twenty-one on the Socioeconomic Status Rating Scale (see Appendix H). There are two children in this bilingual family.

Student Identification 003



= Child's score
= National Median
= National Mean
= $\bar{X}$ of PSEN Group
= Range of Scores - PSEN Group
= Range of Possible Scores

Socioeconomic Variables

No. of Employed Parents at Home	1
Father's Occupation	25
No. of Children Living at Home	6
No. of Languages in Home	1

The student identified as 003 scored below this group mean and national mean on both the reading readiness and reading achievement measures.

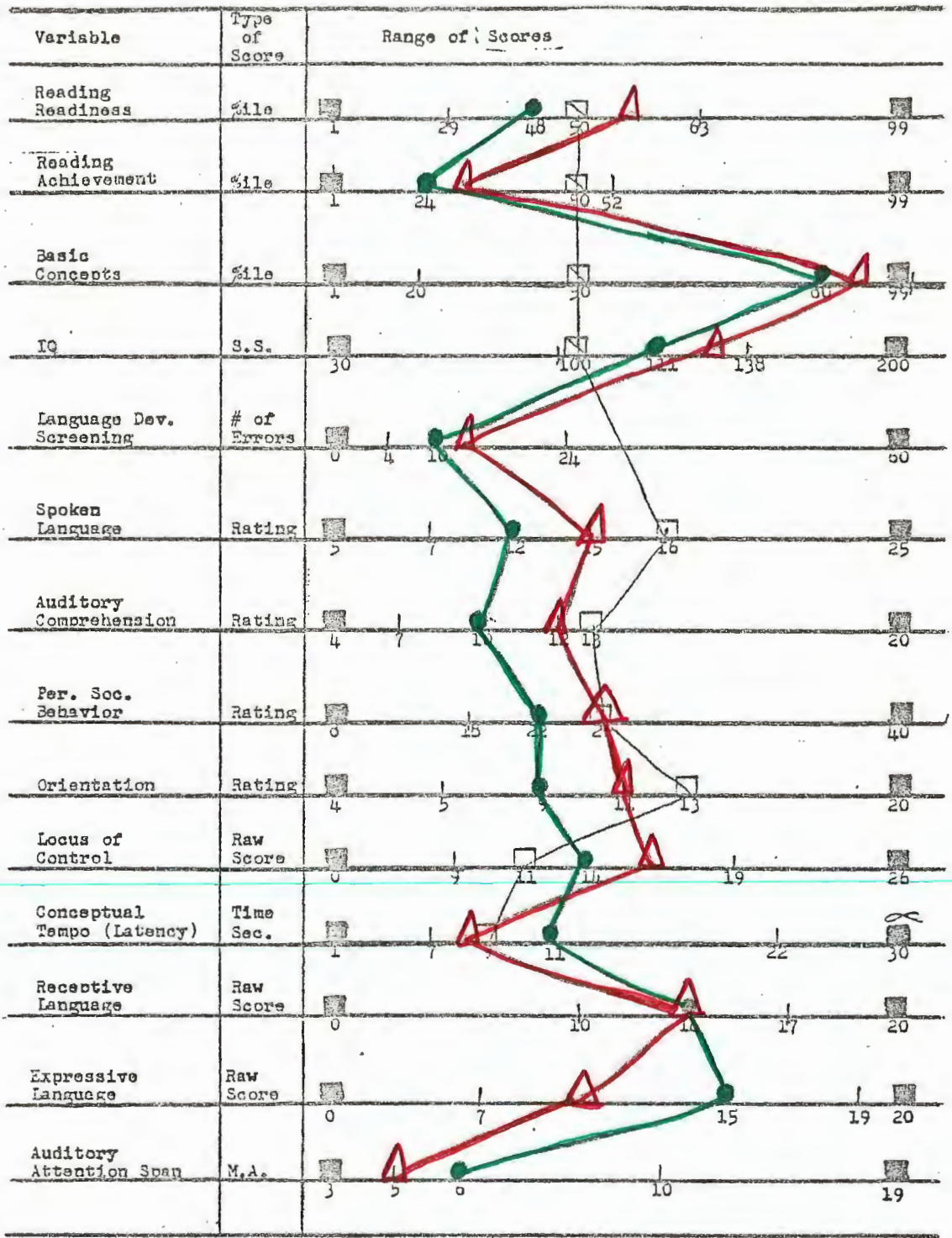
The general aptitude measures indicate that his knowledge of basic concepts are above both this group mean and the national mean. His I.Q. score of 109 places him above the national mean but slightly below the mean for this group.

He scored among those who made the fewest errors on the Primary Language Development Screening Test. Both receptive and expressive language scores are slightly below the group mean. He demonstrated a mental age of five years in auditory attention span for related syllables.

This child's teacher rated him at the bottom of this group in spoken language, auditory comprehension, personal-social behavior, and orientation. Each of these scores are below the national mean.

He sees himself as being both internally and externally controlled and demonstrated a reflective learning style on the conceptual tempo measure used in this study.

There is only one employed parent in his family. His father was rated twenty-five on the Socioeconomic Status Rating Scale (see Appendix H). There are six children in this monolingual home.



= Child's score

= National Median

= National Mean

= $\bar{X}$ of PSEN Group

= Range of Scores - PSEN Group

= Range of Possible Scores

Socioeconomic Variables

No. of Employed Parents at Home	1
Father's Occupation	49
No. of Children Living at Home	3
No. of Languages in Home	1

The student identified as 004 scored above this group mean and national mean on the reading readiness measure. She continued to score above this group's mean but below the national mean on the reading achievement measure.

The general aptitude measures indicate that her knowledge of basic concepts are above both the group mean and national mean. Her I.Q. score of one hundred twenty-six is among the highest scores in this group.

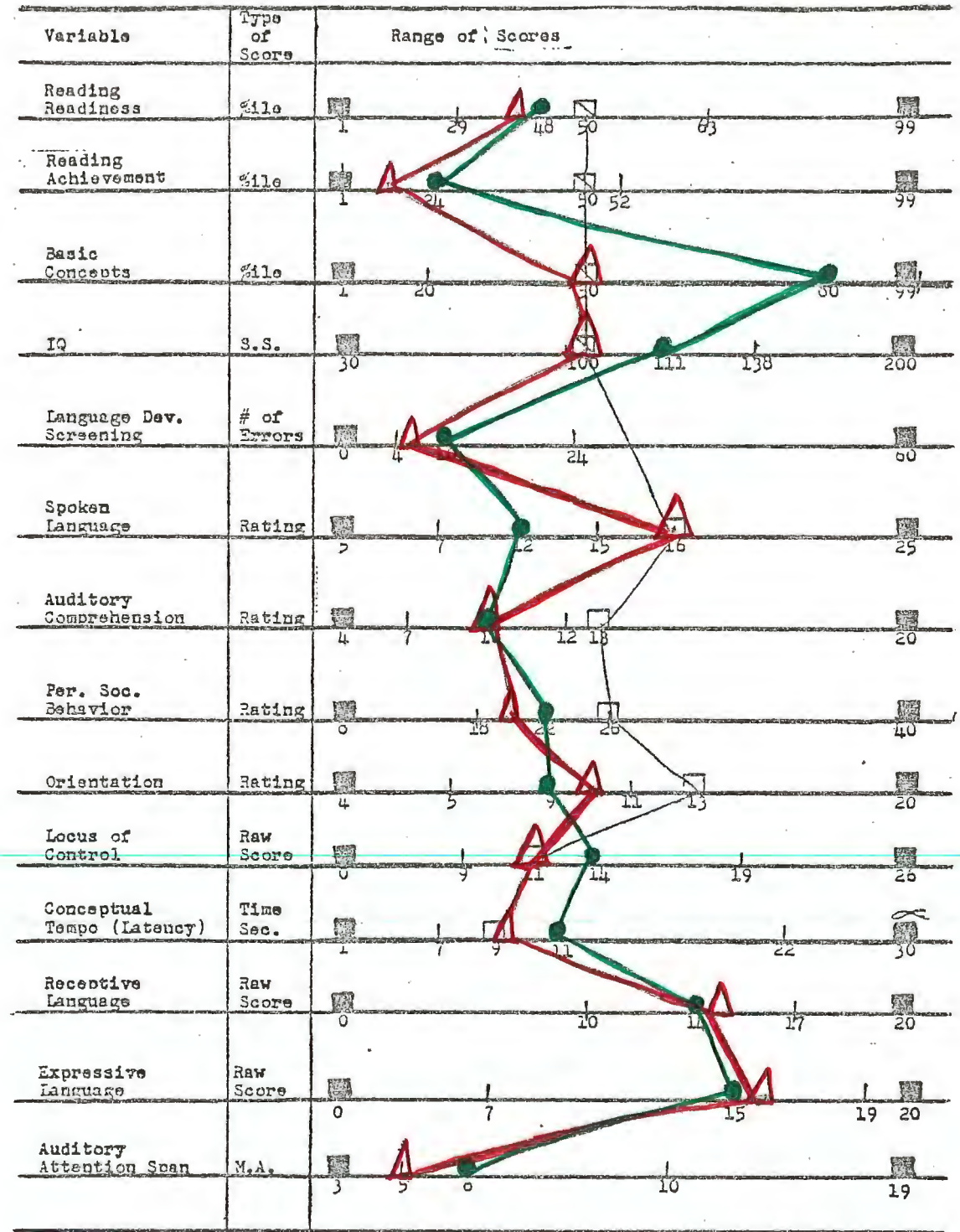
At the end of kindergarten, she scored above the mean in number of errors on the Language Development Screening Test. Her receptive language score is equivalent to the mean for this group and expressive language is lower than the group mean. She demonstrated a mental age of five years in her attention span for related syllables.

This child's teacher rated her above the mean for this group but below the national mean in spoken language, auditory comprehension, and orientation. She was rated equivalent to the national mean in personal-social behavior.

She sees herself as an externally controlled person and demonstrated an impulsive learning style on the conceptual tempo measure used in this study.

There is only one employed parent in her family. Her father's occupation was rated forty-nine on the Socioeconomic Status Rating Scale (see Appendix H). There are three children in this monolingual family.

Student Identification 025



= Child's score

= National Median

= National Mean

= $\bar{X}$ of PSEN Group

= Range of Scores - PSEN Group

= Range of Possible Scores

Socioeconomic Variables

No. of Employed Parents at Home	1
Father's Occupation	50
No. of Children Living at Home	5
No. of Languages in Home	1

The student identified as 005 scored slightly below the group mean and national mean on the reading readiness measure. She continued to drop below both this group and national mean on the reading achievement measure.

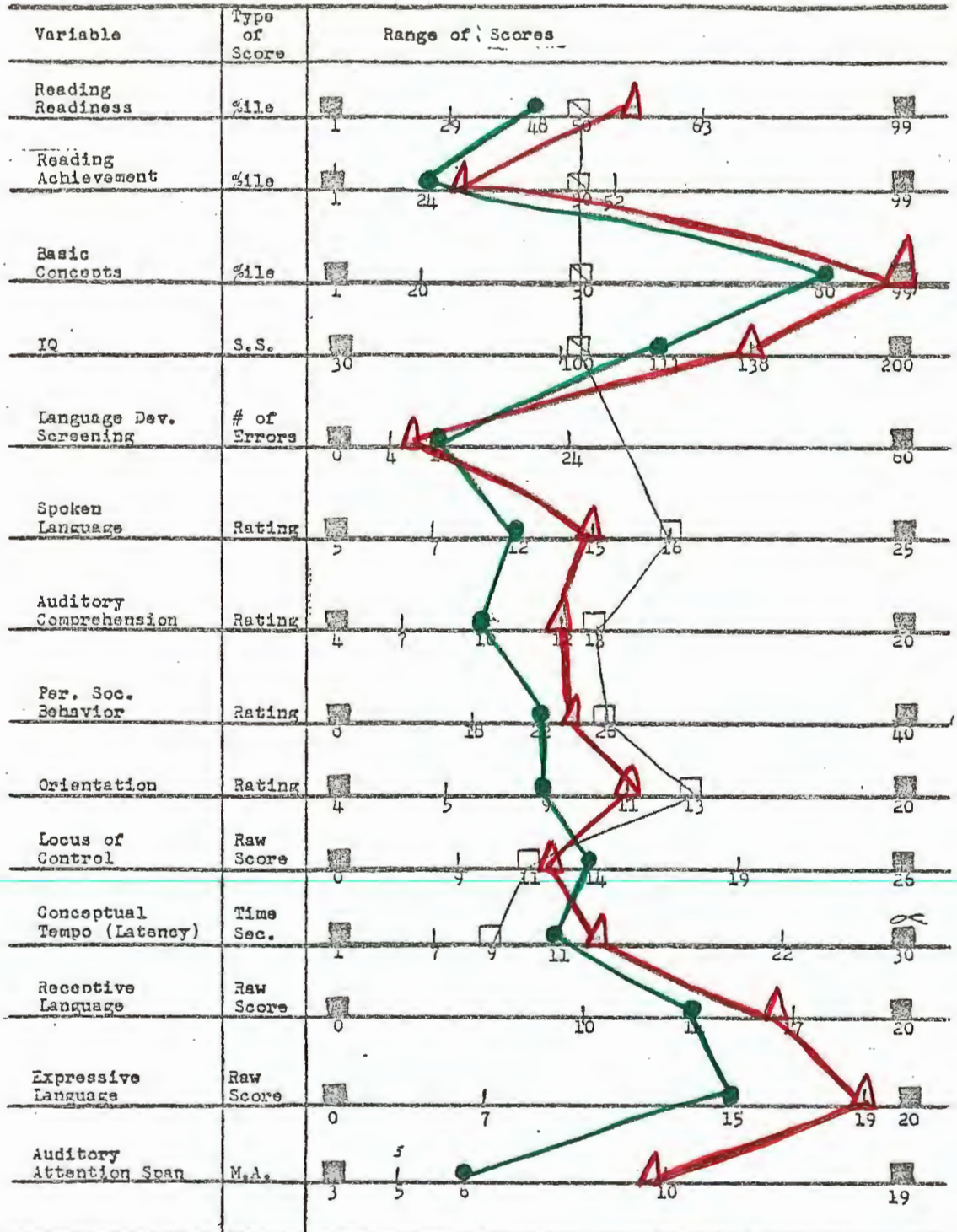
Both the Boehm Test of Basic Concepts and the Slosson I.Q. test place her general aptitude scores equivalent to the national mean but lower than the mean for this group.

At the end of kindergarten, she made few errors on the Primary Language Development Screening Test. Both her receptive and expressive language scores are slightly above the mean for this group. She demonstrated a mental age of four years, six months in auditory attention span for related syllables.

This child's teacher rated her at the national mean in spoken language, but below this mean in auditory comprehension, personal-social behavior, and orientation.

She sees herself as being internally controlled and demonstrated an impulsive learning style on the conceptual tempo measure used in this study.

There is only one employed parent in her family. Her father's occupation was rated fifty on the Socioeconomic Status Rating Scale (see Appendix H). There are five children in this monolingual family.



= Child's score

= National Median

= National Mean

= $\bar{X}$ of PSEN Group

= Range of Scores - PSEN Group

= Range of Possible Scores

Socioeconomic Variables

No. of Employed Parents at Home	1
Father's Occupation	37
No. of Children Living at Home	4
No. of Languages in Home	1

The student identified as 006 scored above the mean for this group and the national mean on reading readiness. He continued to score below the national mean but slightly above this group's mean on the reading achievement measure.

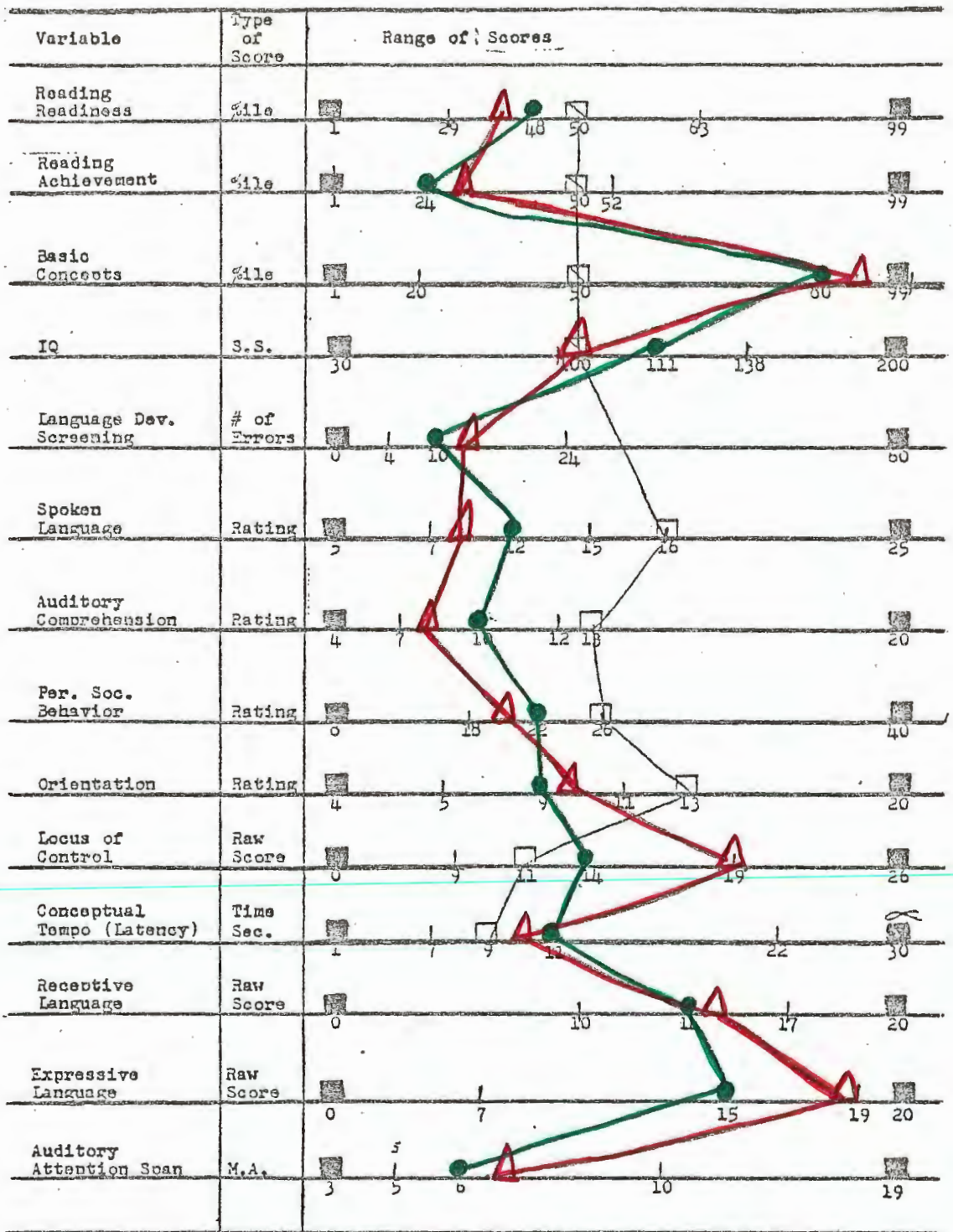
The general aptitude measures indicate that his knowledge of basic concepts is higher than both the group and national mean. His I.Q. score of one hundred thirty-eight is the highest score achieved for this group.

At the end of kindergarten he made few errors on the Language Development Screening Test. His receptive and expressive language scores are among the highest for this group. He demonstrated a mental age of nine years and nine months on the auditory attention span for related syllables.

His teacher rated him among the highest for this group in spoken language, auditory comprehension, personal-social behavior, and orientation. However, each of these scores is below the national mean.

He sees himself as an internally controlled child and demonstrated a reflective learning style on the conceptual tempo measure used in this study.

There is only one employed parent in his family. His father's occupation was rated thirty-seven on the Socioeconomic Status Rating Scale (see Appendis H). There are four children in this monolingual family.



= Child's score
= National Median
= National Mean
= $\bar{X}$ of PSEN Group
= Range of Scores - PSEN Group
= Range of Possible Scores

Socioeconomic Variables

No. of Employed Parents at Home	2
Father's Occupation	23
No. of Children Living at Home	2
No. of Languages in Home	2

The student identified as 007 scored slightly below the mean for this group and the national mean on the readiness measure on the reading readiness measure. He continued to score below the national mean but above this group mean on the reading achievement measure.

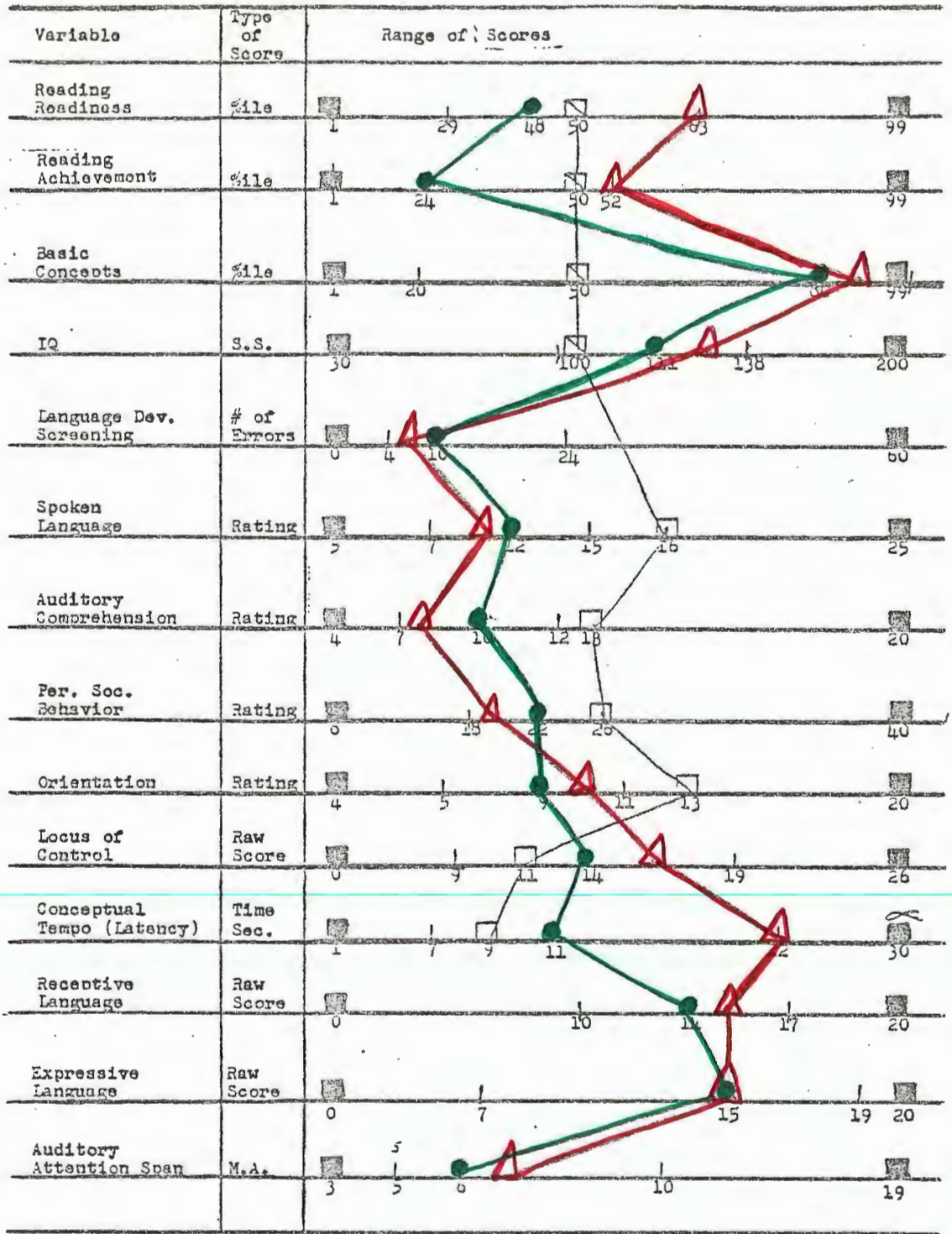
The general aptitude measures indicate his score on the Boehm Test of Basic Concepts is higher than both this group and the national mean. His I.Q. score of one hundred is equivalent to the national mean but lower than the mean for this group.

At the end of kindergarten he scored higher than the mean for this group on the number of errors on the Primary Language Development Screening instrument but he achieved scores that were higher than the mean for this group in both receptive and expressive language measures used in this study. He demonstrated a mental age of seven years and six months in his auditory attention span for related syllables.

This child's teacher rated him below this group mean and the national mean in spoken language, auditory comprehension, and personal-social behavior. He was rated slightly above the mean for this group in orientation.

He sees himself as being an externally controlled person and demonstrated an impulsive learning style on the conceptual tempo measure used in this study.

Both of his parents are employed. His father's occupation was rated twenty-three on the Socioeconomic Status Rating Scale (see Appendix H). There are two children in this bilingual family.



Socioeconomic Variables

No. of Employed Parents at Home	2
Father's Occupation	49
No. of Children Living at Home	2
No. of Languages in Home	3

The student identified as 008 received the highest score for this group on both the reading readiness and the reading achievement measures.

The general aptitude measures indicate that his knowledge of basic concepts is above the mean both for this group and the national norm group. His I.Q. score of one hundred twenty-nine is among the highest for this group.

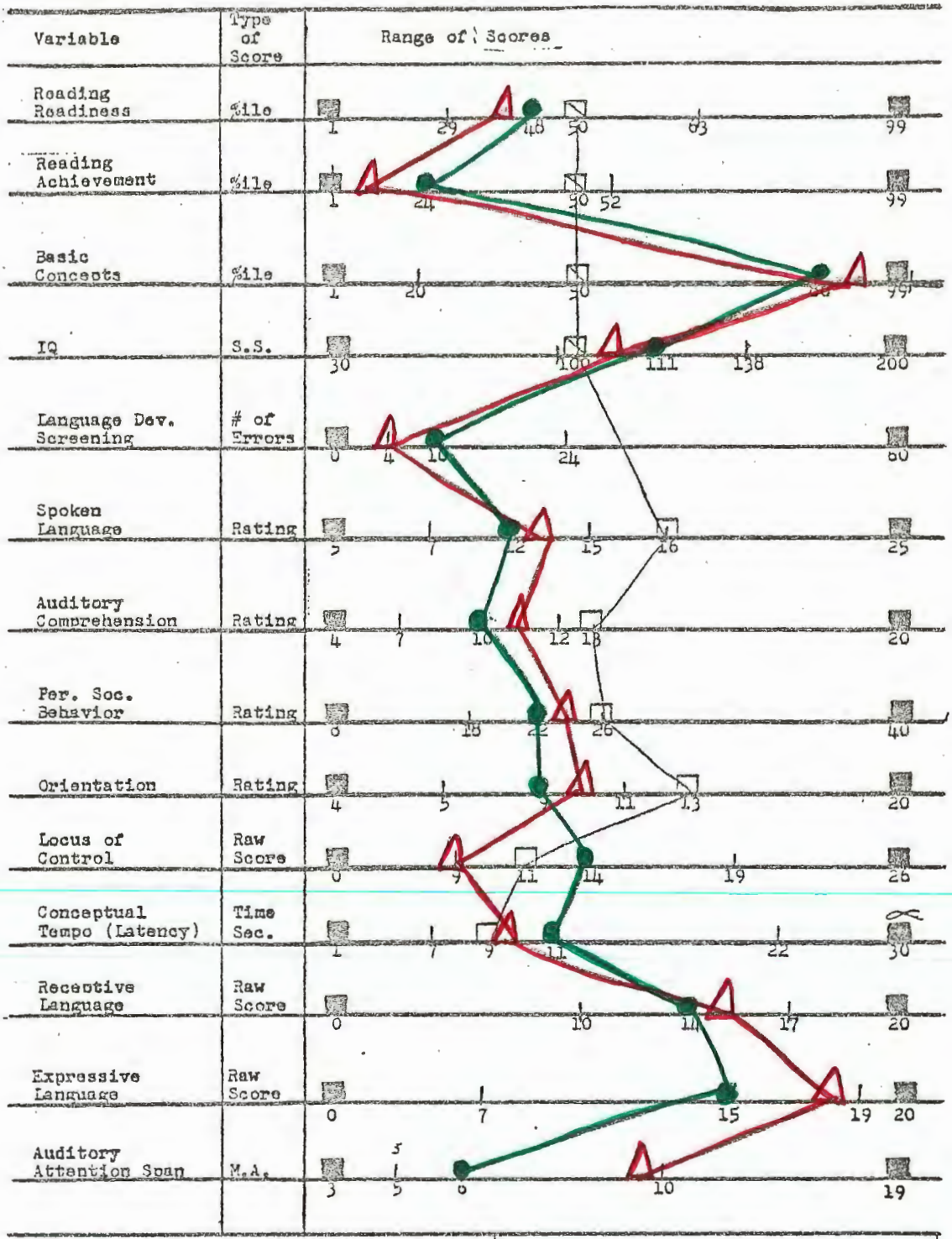
At the end of kindergarten, he scored among the group with fewer errors on the Language Development Screening instrument. Other language measures in this study showed that his receptive language was above the group mean and his expressive language was equivalent to the mean for this group. He demonstrated a mental age of seven years three months in his auditory attention span for related syllables.

This child's teacher rated him below both the group mean and national mean in spoken language, auditory comprehension, and personal-social behavior. He was rated higher than the mean for this group but below the national mean in orientation.

He sees himself as an externally controlled person and demonstrated a reflective learning style on the conceptual tempo measure used in this study.

Both of his parents are employed and his father's occupation was rated forty-nine on the Socioeconomic Status Scale (see Appendix H). There are two children in this trilingual family.

Student Identification 004



Socioeconomic Variables

No. of Employed Parents at Home	2
Father's Occupation	41
No. of Children Living at Home	18
No. of Languages in Home	1

The student identified as 009 scored below the mean for this group and the national mean on the reading readiness measure. He received one of the lowest scores on the reading achievement measure for this group.

The general aptitude measures indicate that his knowledge of basic concepts is among the highest for this group. This child's I.Q. of one hundred five is above the national mean but below the mean for this group.

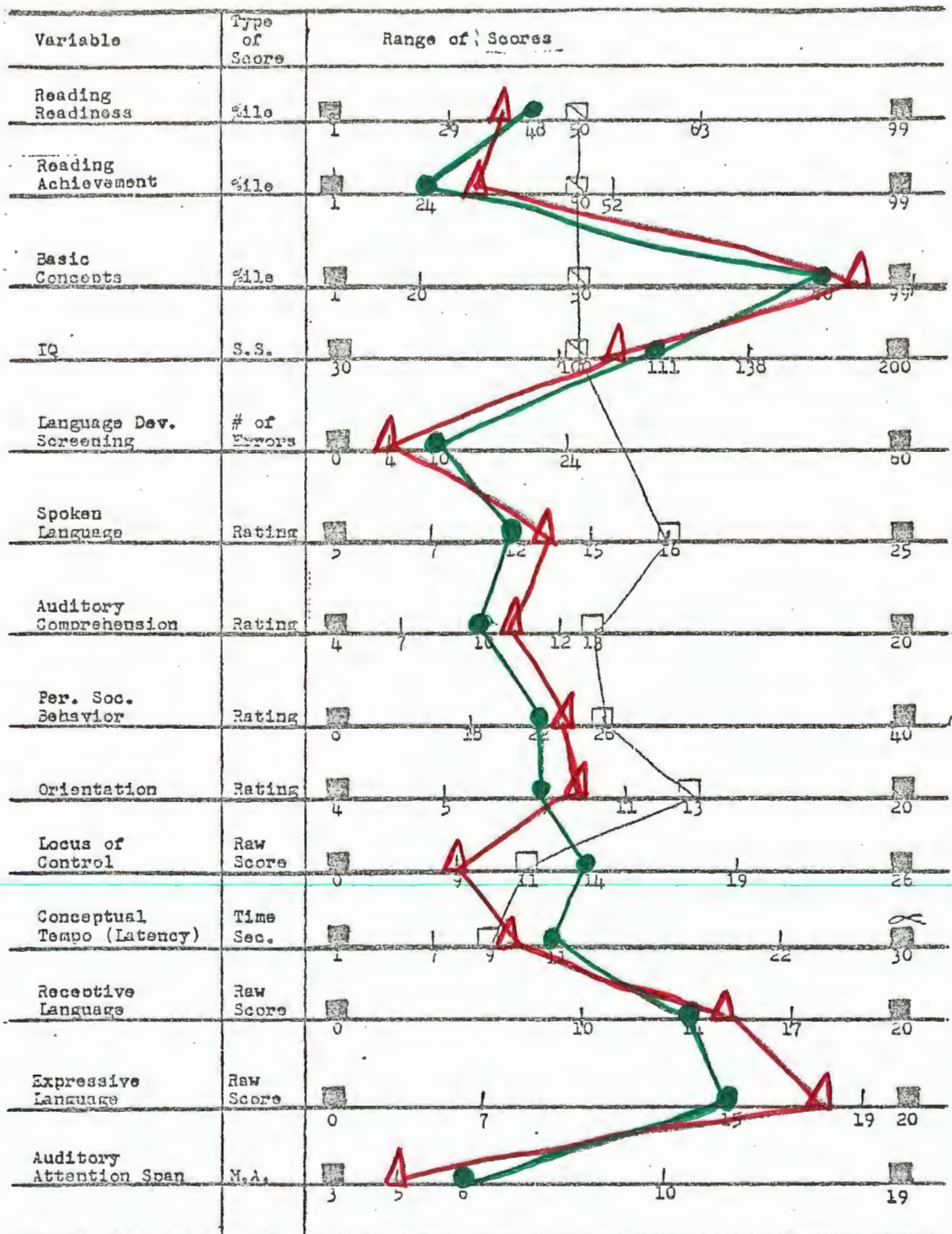
At the end of kindergarten, he scored the least number of errors on the Primary Language Development Screening instrument. The receptive and expressive language measures show his scores are above the mean for this group. He demonstrated a mental age of nine years in his auditory attention span for related syllables.

This child's teacher rated him above the mean for this group but below the national mean in spoken language, auditory comprehension, personal-social behavior, and orientation.

He sees himself as an internally controlled child and demonstrated an impulsive learning style on the conceptual tempo measure used in this study.

Both of his parents are employed and his father's occupation was rated forty-one of the Socioeconomic Status Rating Scale (see Appendix H). There are eighteen children in this monolingual family.

Student Identification 010



Socioeconomic Variables

No. of Employed Parents at Home	1
Father's Occupation	39
No. of Children Living at Home	4
No. of Languages in Home	1

The student identified as 010 scored slightly below the mean for this group and the national mean on the reading readiness measure. She continued to score below the national mean on the reading achievement measure but above the mean for this group.

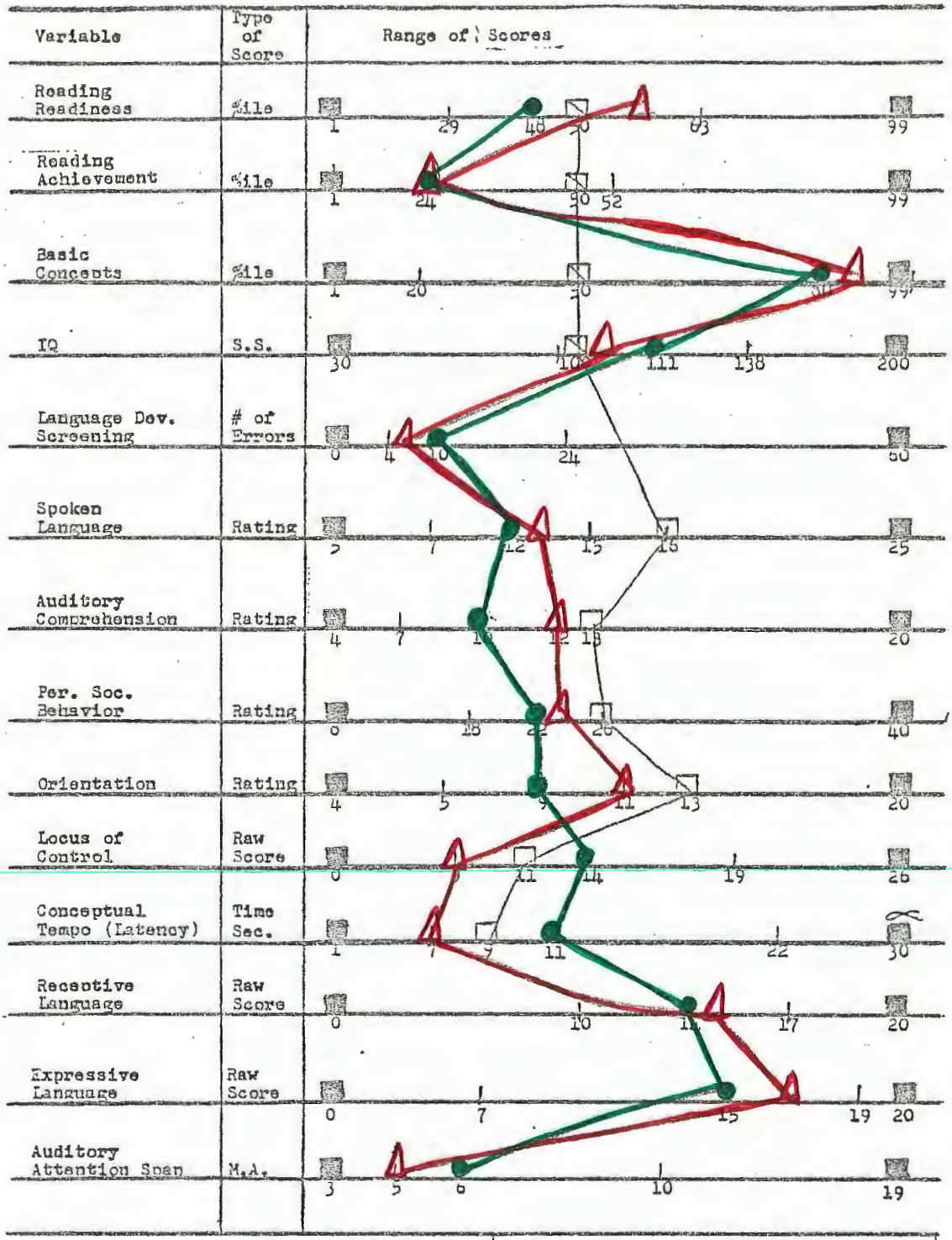
The general aptitude measures indicate that her knowledge of basic concepts is among the highest for this group and higher than the national mean. This child scored 107 on the Slosson I.Q. test.

She scored among those making fewer errors on the language development screening. Both receptive and expressive language scores are above the mean for this group. She demonstrated a mental age of five years three months in her auditory attention span for related syllables.

This child's teacher rated her above the group mean but below the national mean in spoken language, auditory comprehension, personal-social behavior, and orientation.

She sees herself as being externally controlled and displayed an impulsive learning style on the conceptual tempo measure used in this study.

There is only one employed parent in her family. Her father's occupation was rated 29 on the Socioeconomic Status Rating Scale (see Apendix H). There are two children in this monolingual home.



= Child's score

= National Median

= National Mean

= $\bar{X}$ of PSEN Group

= Range of Scores - PSEN Group

= Range of Possible Scores

Socioeconomic Variables

No. of Employed Parents at Home	1
Father's Occupation	39
No. of Children Living at Home	4
No. of Languages in Home	1

The student identified as 011 scored above the mean both for this group and the national mean on the reading readiness measure. However, he dropped below the national mean on the reading achievement measure but scored equivalent to the mean for this group.

The general aptitude measures indicate that his knowledge of basic concepts is above both this group's mean and the national mean. The Slosson I.Q. test placed him slightly above the national mean with a score of 102.

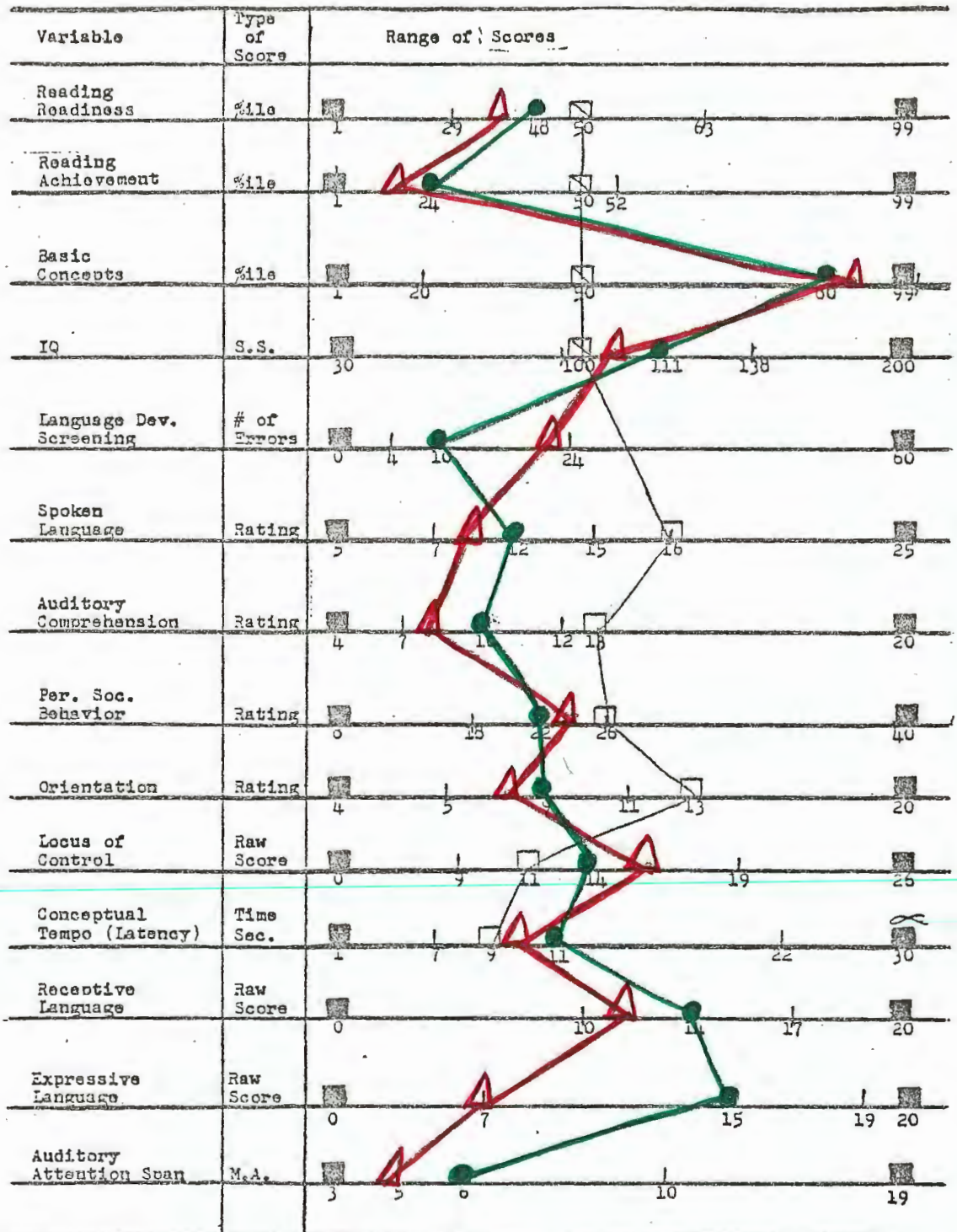
At the end of kindergarten he scored slightly below the mean for this group in the number of errors made on the Primary Language Development Screening instrument. Other language measures used in this study placed him above the mean both in receptive and expressive language. He demonstrated a mental age of five in his auditory attention span for related syllables.

This child's teacher rated him above the mean for this group but below the national mean in spoken language, auditory comprehension, personal-social behavior, and orientation.

He sees himself as being internally controlled and displayed an impulsive learning style on the conceptual tempo measure used in this study.

There is only one employed parent in his family. His father's occupation was rated thirty-nine on the Socioeconomic Status Rating Scale (see Appendix H). There are four children in this monolingual family.

Student Identification 012



= Child's score
= National Median
= National Mean
= $\bar{X}$ of PSEN Group
= Range of Scores - PSEN Group
= Range of Possible Scores

Socioeconomic Variables

No. of Employed Parents at Home	2
Father's Occupation	33
No. of Children Living at Home	2
No. of Languages in Home	2

The student identified as 012 scored slightly below the mean for this group and the national mean on the reading readiness measure. She scored at the twentieth percentile on the reading achievement measure at the end of first grade which is below both this group mean and the national mean.

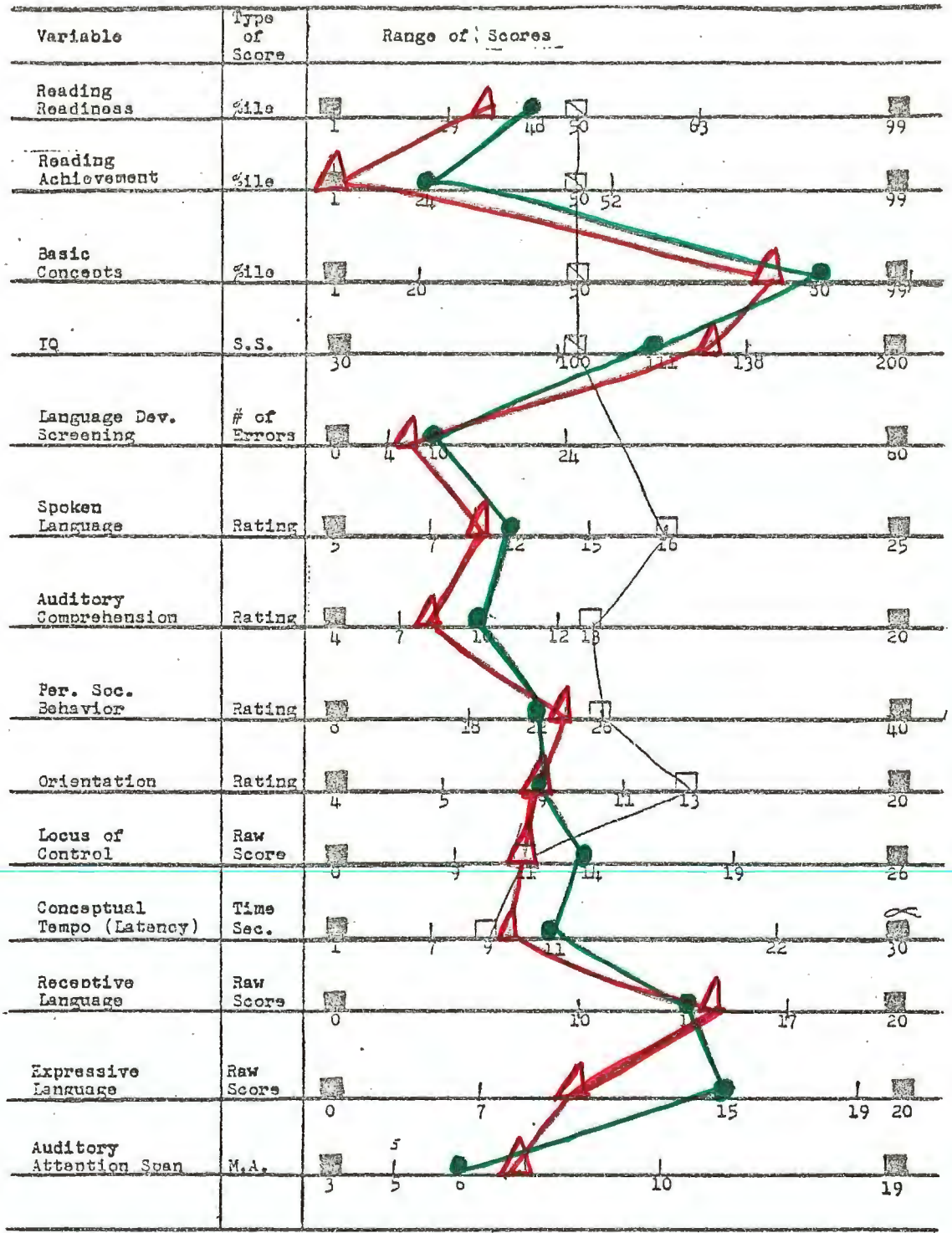
The general aptitude measures indicate that her knowledge of basic concepts is above both this group mean and national mean. An I.Q. score of 107 places her between the national mean and mean for this group.

She scored the highest number of errors for any child in this study on the language development screening instrument. She continued to be lower than the mean for this group on the language measures used in this study for both receptive and expressive language. She demonstrated a mental age of four years six months in auditory attention span for related syllables.

This child's teacher rated her below this group mean and the national mean in spoken language, auditory comprehension, and orientation, but slightly above the mean for this group in personal-social behavior.

She sees herself as being internally controlled and demonstrated an impulsive learning style on the conceptual tempo measure used in this study.

Both parents are working in this family. Father's occupation was rated thirty-three on the Socioeconomic Status Rating Scale (see Appendix H). There are two children in this bilingual home.



= Child's score

= National Median

= National Mean

= $\bar{X}$ of PSEN Group

= Range of Scores - PSEN Group

= Range of Possible Scores

Socioeconomic Variables

No. of Employed Parents at Home 2

Father's Occupation 39

No. of Children Living at Home 3

No. of Languages in Home 1

The student identified as 013 scored below the mean for this group and the national mean on the reading readiness measure. She achieved one of the lowest possible scores on the reading achievement measure at the end of first grade.

The general aptitude measure indicates that her knowledge of basic concepts is below this group mean and the national mean. An I.Q. score of 122 places her among the highest in this group and above both this group and national mean.

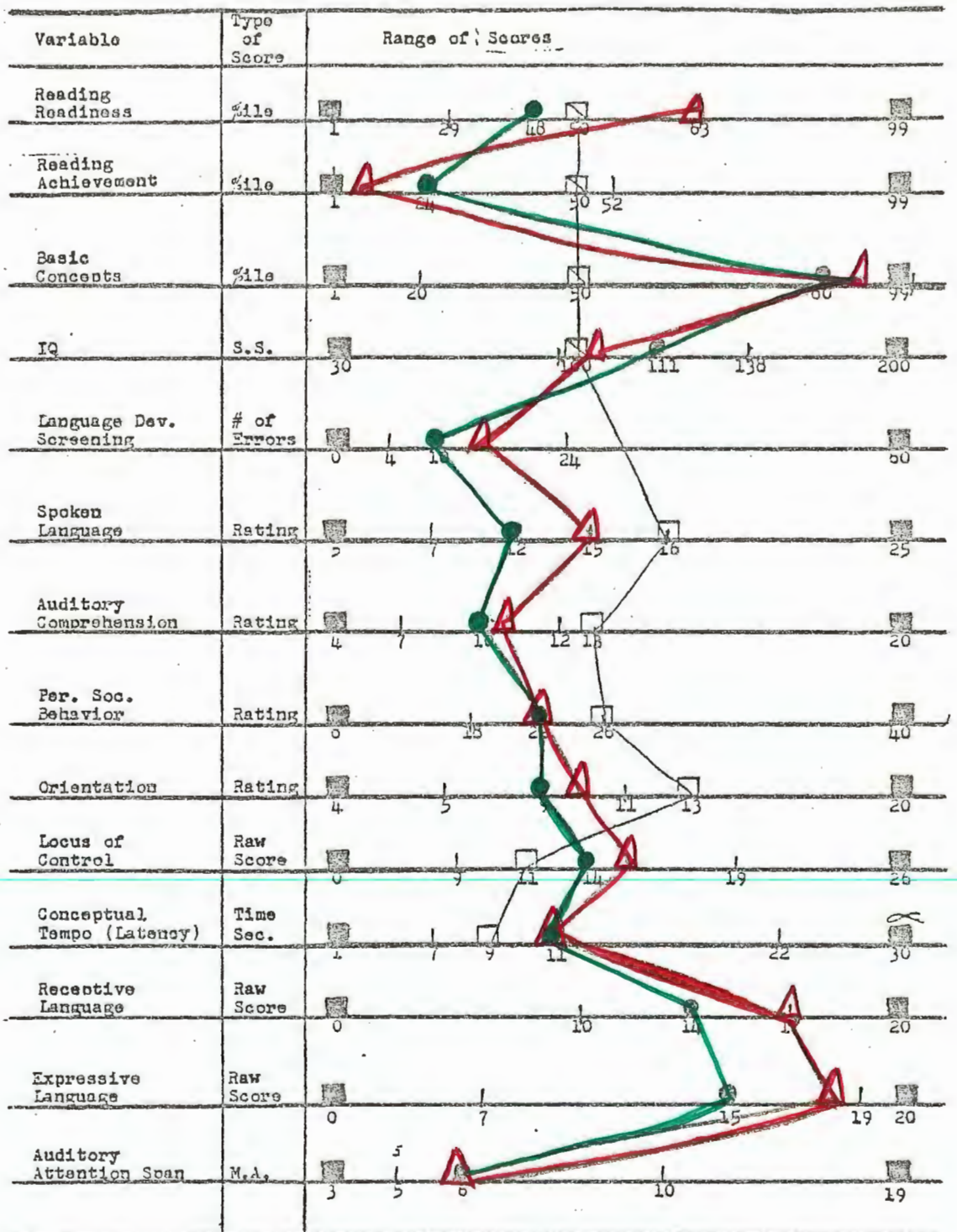
She scored slightly below the mean in number of errors on the language development screening. Other language measures used in this study show her receptive language above the mean for the group but expressive language among the lowest for this group. She demonstrated a mental age of eight years in her auditory attention span for related syllables.

This child's teacher rated her below the mean for this group and the national mean on spoken language and auditory comprehension, slightly above in personal-social behavior and equivalent to the mean for this group in orientation.

She sees herself as being internally controlled and displayed an impulsive learning style on the conceptual tempo measure used in this study.

Both parents are working in her family. Father's occupation was rated thirty-nine on the Socioeconomic Status Rating Scale (see Appendix H). There are three children in this monolingual home.

Student Identification 014



= Child's score
= National Median
= National Mean
= $\bar{X}$ of PSEN Group
= Range of Scores - PSEN Group
= Range of Possible Scores

Socioeconomic Variables

No. of Employed Parents at Home	2
Father's Occupation	3.3
No. of Children Living at Home	1
No. of Languages in Home	1

The student identified as 014 achieved one of the highest percentile scores for this group on the reading readiness measure. However, he scored at the bottom of the group on the reading achievement measure at the end of first grade.

The general aptitude measures indicate that his knowledge of basic concepts measured among the highest for the group. An I.Q. score of 101 places him lower than the mean for this group.

He scored among those making the highest number of errors on the language development screening. Other language measures used in this study show his performance in receptive and expressive language to be among the highest for this group. He demonstrated a mental age of six years in his auditory attention span for related syllables.

This child's teacher rated him above the mean for this group but below the national mean in spoken language, auditory comprehension, and orientation. He was rated equal to the mean for this group in personal-social behavior.

This child sees himself as being externally controlled and diaplayed a reflective learning style on the conceptual tempo measure used in this study.

Both parents work in this family. Father's occupation was rated thirty-three on the Socioeconomic Status Rating Scale (see Appendix H). He is the only child in this monolingual family.

Summary

The results of this study indicate that this group of fourteen PSEN students are most alike on I.Q., personal-social behavior ratings of teachers, receptive language, reading achievement, orientation and auditory comprehension ratings of teachers. They were less alike on locus of control, reading readiness, spoken language ratings of teachers, and expressive language. Variables on which the group differed most are number of children in the home, number of errors on the language screening test, number of languages spoken in the home, conceptual tempo, socioeconomic status, number of employed parents, basic concepts, and auditory attention span for related syllables.

This study found locus of control, number of languages spoken in the home, receptive language, and teacher ratings of spoken language and personal-social behavior have high correlation with reading achievement.

Those variables showing a positive relationship to reading achievement are locus of control, number of languages spoken in the home, reading readiness, language development, socioeconomic status, expressive language, and I.Q. Variables which have an inverse relationship to reading achievement are receptive language, spoken language, personal-social behavior, auditory attention span, number of children in the home, auditory comprehension, number of employed parents, orientation, basic concepts, and conceptual tempo.

The individual profiles compare the student's score to both the group and national mean for each variable included in the study.

CHAPTER V

CONCLUSIONS AND IMPLICATIONS

Purpose

This study was designed to investigate the literature on factors that inhibit some children from experiencing success in reading, to determine the existence of these identified factors for a small group of students, determine the similarities and differences within the group, analyze the relationship of identified factors to reading achievement, and to develop an individual profile for each child.

Conclusions

Based on a review of the literature the following factors were identified for study: reading readiness, reading achievement, knowledge of basic concepts, intelligence, language development, teacher expectation, locus of control, conceptual tempo, auditory attention span, and several socioeconomic factors that included socioeconomic status, number of employed parents, size of family, and language spoken in the home.

The following conclusions can be drawn from an analysis of the data:

1. These students were highly similar in intelligence, teacher ratings of personal-social behavior, orientation, and

auditory comprehension, receptive language, and reading achievement. They were less alike but similar in locus of control, reading readiness, teacher ratings of spoken language, and expressive language. This group was most unlike in number of children in the home, language development, number of languages spoken in the home, conceptual tempo, socioeconomic status, number of employed parents, knowledge of basic concepts, and auditory attention span.

2. The mean for this group of students was higher than the national mean on intelligence, knowledge of basic concepts, more externals as indicated by the locus of control measure, and more impulsive learning styles as indicated by the conceptual tempo measure used in this study. The mean for this group was lower than the national mean on reading readiness, reading achievement, teacher ratings on spoken language, auditory comprehension, personal-social behavior, and orientation.

3. The following factors were shown to have a positive relationship to reading achievement: locus of control, number of languages spoken in the home, reading readiness, language screening, socioeconomic status, expressive language, and I.Q. Factors showing an inverse relationship to reading are: receptive language, teacher ratings of spoken language, personal-social behavior, auditory comprehension, and orientation, number of children in the home, auditory attention span, number of employed parents, knowledge of basic concepts, and conceptual tempo.

4. The individual profiles demonstrated the variability of learner characteristics for each child in relationship to a group of students and to a normative population where it was available. These profiles are offered as a diagnostic tool for use in planning and grouping for reading instruction.

5. Although these students had been identified as PSEN students, this study indicated that these were intelligent students with the capacity for learning to read. The general aptitude of this group was above the usual range of low achieving students.

6. Other characteristics of this group emerged from an overall observation of the data in this study which included:

A. Teacher ratings of students' performances in spoken language, auditory comprehension, personal-social behavior, and orientation were low.

B. More students in this group felt the need to comply with external demands for their behavior rather than possess internal controls for their own actions.

C. The majority of the group displayed an impulsive learning style and were prone to making more errors.

Limitations of the Study

In reviewing this study, many elements of the design must be considered as restrictive factors. The population was confined to a small group of fourteen students in a white lower middle class suburban school.

The language development screening, receptive and expressive language measures have not been statistically validated as language measures.

These fourteen children were placed in two classrooms with teachers using different reading styles and approaches to beginning reading. These conditions, although a factor in the success or failure of learning to read, were not explored in the design of this study.

Any study that attempts to describe human traits or performance is of necessity limited to the particular variables chosen for examination. Therefore it is possible that other variables not under consideration are important to a complete analysis of the questions in this research design.

A child's attitude toward a task is an important ingredient in the execution of any task and especially in reading. Although the researcher recognized the importance of attitude as a factor in reading success, it was profferred to further study.

Recommendations for Further Research

It is suggested that the present study be a pilot study for further research which would include a diagnostic instructional design based on the findings in this study.

A replication of this study could be conducted at a future time to assess any variation of these characteristics within this group of individuals as a result of maturation.

The design of this study could serve as a model for further study using the same factors and analysis but select different instruments to measure the specific factors.

A review of the limitations of this study suggests the present design could be expanded for further research which would include either or both the teaching approach used for reading and the child's attitude toward reading.

The study could be replicated and used as a comparative study between an inner city school and suburban school or between two suburban schools or two inner city schools.

Summary

This study investigated the literature and identified reading reading readiness, reading achievement, knowledge of basic concepts, intelligence, language development, teacher expectation, locus of control, conceptual tempo, auditory attention span, and selected socioeconomic factors for study.

Conclusions were drawn from the data which include: the similarities and differences for this group, a comparison of the mean for this group with a national mean where it was available, the relationship of each factor to reading achievement, the individual profiles as diagnostic tools for reading instruction, the general aptitude of this group, and overall observations of specific characteristics within this group.

The study is limited in the design because of size, instruments that were not validated, placement of students with different teachers,

the inexhaustible nature of studying human subjects, and the exclusion of attitude as a factor in the design.

Several recommendations were made for further study using both the data and design of the present study.

BIBLIOGRAPHY

BIBLIOGRAPHY

Abrams, J. C. Psychological influences on reading. In M. S. Johnson & R. A. Kress (Eds.), Sociological and psychological factors in reading (Vol. 3). Philadelphia, Pa.: A. H. Kroekel & Bros. Printer, 1964.

Allen, G. J., Giat, L., & Cherney, J. Locus of control, text anxiety, and student performance in a personalized instruction course. Journal of Educational Psychology, 1974, 66(6), 968-976.

Allport, G. Personality: a psychological interpretation. New York: Holt, 1937.

Anastasiow, N. Oral language and learning to read. In C. Braun (Ed.), Language reading and the communication process. Newark, Del.: International Reading Association, 1971.

Anastasiow, N. Cognition and language. In J. L. Laffey & R. Shuy (Eds.), Language differences do they interfere? Newark, Del.: International Reading Association, 1973.

Anderson, I.H., Hughes, B. O., & Dixon, W. R. The rate of reading development and its relation to age of learning to read, sex and intelligence. Journal of Educational Research, 1957, 50, 481.

Athey, I. J. Language models and reading. Reading Research Quarterly, 1971, 7(1), 116-110.

Baker, H. J., & Leland, B. Detroit Test of Learning Aptitude. Indianapolis, Indiana: Bobbs-Merrill Co., Inc., 1958.

Barrett, T. C. Goals of the reading program: The basis for evaluation. In T. C. Barrett (Ed.), The evaluation of children's reading achievement. Newark, Del.: International Reading Association, 1967.

Bartlett, F. C. Thinking. New York: Basic Books, 1958.

Battle, E. S., & Rotter, J. B. Children's feelings of personal control as related to social class and ethnic group. Journal of Personality, 1963. 31, 482-490.

Belmont, H. S. Psychological influences on learning. In M. S. Johnson & R. A. Kress (Eds.) Sociological and psychological factors in reading. Philadelphia, Pa.: Vol. III, A. H. Kroekel & Bros. Printer, 1964.

Blank, M. Cognitive processes in auditory discrimination in normal and retarded readers. Child Development, 1968, 39, 1091-1011.

Berg, P. C., Evaluating reading abilities. In W. H. MacGintie (Ed.), Assessment problems in reading. Newark, Del.: International Reading Association, 1973.

Boehm, A. E. Boehm Test of Basic Concepts, Forms A & B. New York: The Psychological Corporation, 1971.

Bond, G. L., & Dykstra, R. Interpreting the first grade studies. In R. G. Stauffer (Ed.), The first grade studies. Newark, Delaware: International Reading Association, 1967.

Callaway, B. Factors related to reading of children referred to a university reading clinic. In W. K. Durr (Ed.), Reading difficulties: diagnosis correction and remediation. Newark, Delaware: International Reading Association, 1970.

Carroll, J. B., & Chall, J. S. (Eds.), Toward a literate society, a report for the national academy of education. New York: McGraw-Hill Book Company, 1975.

Carter, H. L. J. The teacher's diagnosis of the disabled reader. In W. K. Durr (Ed.), Reading difficulties: diagnosis, correction, and remediation. Newark, Delaware: International Reading Association, 1970.

Carver, R. P. Reading as reasoning implications for measurement. In W. H. MacGinitie (Ed.), Assessment problems in reading. Newark, Delaware: International Reading Association, 1973.

Cazden, C. B. Three sociolinguistic views of the language and speech of lower-class children: with special attention to the work of Basil Bernstein. Developmental Medicine and Child Neurology, 1968, 10, 600-612.

Chall, J. S. Report of the committee on reading: national academy of education. In J. B. Carroll and J. S. Chall (Eds.), Toward a literate society, a report from the national academy of education. New York: McGraw-Hill Book Company, 1975.

Chomsky, N. Language and mind. New York, New York: Harcourt Brace Jovanovich, Inc., 1972.

Coleman, J. S. Equality of educational opportunity. Washington, D.C.: U. S. Office of Education, 1966.

Crandall, V. J. Achievement. In H. W. Stevenson et al. (Eds.), National Society for the Study of Education, Yearbook: Part I, Child Psychology: Chicago: University of Chicago Press, 1963.

Cruickshank, W. M. Perceptual and learning disability: a definition and projection. Educational Leadership, May, 1975, 499-502.

Downing, J. How children develop concepts of language. In C. Braun (Ed.), Language, Reading, and the Communication Process. Newark, Delaware: International Reading Association, 1971.

Eisenberg, L. The epidemiology of reading retardation and a program for preventive intervention. In J. Money & G. Schiffman (Eds.), The Disabled Reader. Baltimore, Maryland: John Hopkins Press, 1966.

Entwisle, D. R. Implications of language socialization for reading models and for learning to read. Reading Research Quarterly, Fall, 1971, 111-167.

Evans, J. R., & Smith, L. J. Psycholinguistic skills of early readers. The Reading Teacher, October, 1976, 39-43.

Farr, R. Reading What Can Be Measured? Newark, Delaware: International Reading Association, 1969.

Fox, S. E. Assisting children's language development. The Reading Teacher. April, 1976, 666-670.

Fryburg, E. The test of cognition, unpublished document. Manhattan College, 1972.

Gagan, W. T., Cooper, C. R., & Jensen, J. M. Measures for research and evaluation in the English language arts. Urban, Illinois: National Council of Teachers of English, 1975.

Hall, V. C., & Russell, W. J. C. Multitrait-multimethod analysis of conceptual tempo. Journal of Educational Psychology, 1974, 66(6), 932-939.

Haring, N. G., & Ridgway, R. W. Early identification of children with learning disabilities. Exceptional Children, 1967, 33, 387-395.

Hess, R. D., & Shipman, V. C. Early experience and socialization of cognitive modes in children. Child Development, 1965, 36, 869-886.

Heilman, A. W. Smuggling language in the teaching of reading, Columbus, Ohio: Charles E. Merrill Publishing Co., 1972.

Hildreth, G. H. Child growth through education; effective teaching in the modern school. New York: Ronald Press Co., 1948.

Johnson, M. S., & Kress, R. A. Sociological and psychological factors in reading. Philadelphia, Pa.: A. H. Kroekel & Bros. Printer, 1964.

Kagan, J. Matching familiar figures, unpublished document, Harvard University, 1964.

Kagan, J. Impulsive and reflective children. In J. Krumboltz (Ed.), Learning and the educational process. Chicago: Rand McNally, 1965.

Kasdon, L. M. Causes of reading difficulties: facts and fiction. In W. K. Durr (Ed.), Reading difficulties: diagnosic, correction and remediation. Newark, Delaware: International Reading Association, 1970.

Katz, J. The philosophy of language. New York: Harper & Row, 1968.

Kirk, S. Teaching reading to slow-learning children. Boston, Mass.: Houghton Mifflin, 1940.

Klineberg, O. Life is fun in a smiling, fair-skinned world. In J. L. Frost (Ed.), Issues and innovations in the teaching of reading. Chicago, Ill.: Scott, 1967.

Knight, L. N. Language arts for the exceptional: the gifted and the linguistically different. Itasca, Ill.: F. E. Peacock Publishers Inc., 1974.

Kress, R. A. Sociological influences on learning and reading. In M. S. Johnson & R. A. Kress (Eds.), Sociological and pyschological factors in reading (Vol. 3). Philadelphia, Pa.: A. H. Kroekel & Bros. Printer, 1964.

Kress, R. A. Classroom diagnosis of comprehension abilities. University of Pittsburgh conference on reading, report #22. 1966. 33-41.

Lambert, N. M. Paired associate learning, social status, and tests of logical concrete behavior as univariate and multivariate predictors of first grade reading achievement. American Educational Research Journal, 1970, 7, 511-528.

Leeds, D. S. Sociology of reading: literacy and language, Reading World, October, 1974, 71-81.

Lenneberg, E. New directions in the study of language. Cambridge, Mass.: The M.I.T. Press, 19-6.

Levenson, D. Where do they belong? Teacher, March, 1977, 54-56.

Lewis, M. M. Language and the child. England: National Foundation for Educational Research, 1969.

Lloyd, B. A. Helping the disabled reader at the elementary level. In J. Figurel (Ed.), Reading and realism. Newark, Delaware: International Reading Association, 1969.

Loban, W. D. The language of elementary school children. NCTE Research Report No. 1. Urbana, Illinois: National Council of Teachers of English, 1963.

MacDonald, A. P. Internal-external locus of control. In J. Robinson & P. Shaver (Eds.), Measures of social psychological attitudes. Ann Arbor, Michigan: University of Michigan, Institute for Social Research, 1973.

MacGinitie, W. H. (Ed.), Assessment problems in reading. Newark, Delaware: International Reading Association, 1973.

MacGinitie, W. H. Evaluating readings for developmental language learning: critical review and evaluation of research. In J. A. Figurel (Ed.), Reading and Realism. Newark, Delaware: International Reading Association, 1969.

Martin, C. Developmental interrelationships among language variables in children of the first grade. Elementary English, March, 1955, 32, 167-171.

Miller, J. W., & Hintzman, C. A., Syntactic complexity of newberry award winning books. Reading Teacher, May, 1975, 749-756.

Mitchell, A. S. Should dialectical differences be considered in reading instruction. In H. A. Klein (Ed.), The quest for competency in teaching reading. Newark, Delaware: International Reading Association, 1972.

Monroe, M., & Backus, B. Remedial reading: a monograph in character education. Boston, Mass.: Houghton Mifflin, 1937.

Moore, T. E. Cognitive development and the acquisition of language. New York: Academic Press, 1973.

Myklebust, H. The pupil rating scale: screening for learning disabilities. New York: Grune and Stratton, 1971.

Newson, J., & Newson, E., Four years old in an urban community. London: Allen and Allen, 1968.

Newcomer, P. L., & Magee, P. The performance of learning (reading) disabled children on a test of spoken language. The Reading Teacher, May, 1977, 896-906.

Nord, W. R., Connelly, F., & Daignault, G. Locus of control and aptitude test scores as predictors of academic achievement. Journal of Educational Psychology, 1974, 66(6), 956-961.

Nowicki, S., Jr., & Duke, M. P. A preschool and primary internal-external locus of control scale. Emory University, 1973.

Peterson, J. What about reading failure? (Stock #017-080-1042-9 Superintendent of Documents). Washington, D.C.: U.S. Government Printing Office, 1972.

Phares, E. J. Differential utilization of information as a function of internal-external control. Journal of Personality, 1968, 36, 649-662.

Phares, E. Locus of control in personality. Morristown, New York: General Learning Press, 1976.

Powell, W. R. The nature of individual differences. In W. Z. Ramsey (Ed.), Organizing for individual differences. Newark, Delaware: International Reading Association, 1967.

Reiss, A. J., Jr. Occupations and social status. Glencoe, New York: The Free Press of Glencoe, Inc., 1961.

Robinson, H. M. Why pupils fail in reading? Chicago, Illinois: University of Chicago Press, 1946.

Robinson, H. M. Factors which effect success in reading. Elementary School Journal, 1955, 55, 263-269.

Robinson, H. M. Coordinating reading instruction. Glenview, Illinois: Scott Foresman, 1971.

Rotter, J. B. Generalized expectancies for internal vs. external control of reinforcement. Psychological Monographs: General & Applied, 1966, 80(1), 609, 1-28.

Russell, D. H., & H. R. Fea. Research on teaching reading. In N. L. Gage (Ed.), Handbook of research on teaching. Chicago: Rand McNally, 1963.

Satz, P., & Friel, J. Some predictive antecedents of specific reading disability: a preliminary two year follow up. Journal of Learning Disabilities, 1974, 48-55.

Shane, H. G. Research helps in teaching the language arts. Washington, D.C.: Association for Supervision and Curriculum Development, 1955.

Shuy, R. W. Nonstandard dialect problems. In J. L. Laffey & R. Shuy (Eds.), Language Differences do they interfere? Newark, Delaware: International Reading Association, 1973.

Slosson, R. Slosson intelligence test for children and adults. East Aurora, New York: Slosson Educational Publications, 1963.

Smith, F., & Miller, G. A. The genesis of language: a psycholinguistic approach. Cambridge, Mass.: M.I.T. Press, 1966.

Smith, F. Understanding reading. New York: Holt, Rinehart & Winston 1971.

Spache, G. D. Investigating the issues of reading disabilities. Boston, Mass.: Allyn & Bacon, Inc., 1976.

Stasko, K., Foster, M., & O'Brien, D. Early primary language development screening program. Unpublished manuscript, Rochester, New York, Gates-Chili Central Schools, 1975.

Stauffer, R. G. The first grade reading studies, finding of individual investigations. Newark, Delaware: International Reading Association, 1967.

Stephens, M. W., & Delys, P. A locus of control measure for preschool children, Developmental Psychology, 1973, 8(1), 55-64.

Strickland, R. The language of elementary school children: its relationship to the language of reading textbooks and the quality of reading of selected children. Bulletin of the School of Education, Indiana University. 1962, 38(4).

Strickland, R. G. Building on what we know. In J. A. Figurel (Ed.), Reading and realism. Newark, Delaware: International Reading Association, 1969.

Strickland, R. Children's language and their reading. In N. B. Smith & R. Strickland (Eds.), Some approaches to reading. Washington, D.C.: Association for Childhood Education International, 1969.

Strickland, R. G. The language arts in the elementary school. Lexington, Mass.: D. C. Heath & Co., 1969.

Varanese, M. Relationship between locus of control and reading achievement at the intermediate level. Unpublished master's thesis, State University College at Brockport, 1973.

Venezky, R., & Chapman, R. S. Is learning to read dialect bound? In J. L. Laffey, & R. Shuy (Eds.), Language differences: do they interfere? Newark, Del.: International Reading Association, 1973.

Vernon, M. D. Reading and its difficulties. Cambridge, England: Cambridge University Press, 1971.

Vygotsky, L. S. Thought and language. Cambridge, Mass.: M.I.T. Press, 1962.

Wardhaugh, R. Theories of language acquisition in relation to beginning reading instruction. Reading Research Quarterly, Fall, 1971, 7(1), 168-194.

Weaver, W. W., & Kingston, A. J. Modeling effects of oral language upon reading language. Reading Research Quarterly, Summer, 1972, 7(4), 613-627.

Wiener, M., & Cromer, W. Reading and reading difficulty: a conceptual analysis. Harvard Educational Review, 1967, 37, 620-64.

Weintraub, S. Reading research for the schoolman: a look at some aspects of learning to read. Phi Delta Kappan, April, 1971, 490-493.

Witty, P., & Kapel, D. Reading and the Educative process. Boston: Ginn and Co., 1939.

APPENDIX A

Reference Item 6 "District Long Range Plan for Pupils with Special Educational Needs"

APPENDIX A

Reference Item 6 "District Long Range Plan for Pupils with Special Educational Needs"

The following information is supplied in compliance with the current requirements of Chapter 848 - Long Range Planning - and Chapter 241 - District PSEN Plan.

It is the intent of the Gates Chili Central School District to spend monies allocated under the provisions of Chapter 241 to provide programs to meet the needs of identified PSEN pupils.

6A - Method of Identifying Target Pupils

Generally, results of standardized achievement tests in reading and math will be the prime source of data to be used in identification of PSEN pupils. The main exception is Grades K and 1.

Since the identification is required by early October so that the PSEN-1 report can be filed, no formal effort to classify PSEN pupils in kindergarten will be attempted. It is felt that adequate instrumentation for proper identification of four- and five-year olds virtually within days of their entry is lacking. In addition, it is unclear what program implications could be drawn from such premature data collection.

The district has, however, instituted a kindergarten screening program intended to develop a "watch list" of pupils who enter notably lacking in skills or already demonstrating behaviors suggesting latter school problems. This "watch list" will be developed and maintained throughout the kindergarten year and it will be used as an aid in the formal classification of PSEN pupils in first grade.

Identification of PSEN pupils at the beginning of grade one will rely almost entirely on observations of kindergarten teachers. The "watch list" noted above and a district check list will help standardize the selection procedure, but it will still be primarily subjective. In cases that remain unclear, the Metropolitan Readiness Test may be used to collect additional data.

In the remaining grades, 2-12, the results of the annual administration of a standardized achievement battery will be used. The Metropolitan Achievement Tests are used in grades one and two, the Iowa Tests of Basic Skills cover grades three through eight, and Stanford TASK is used in high school. At all tested grade levels, pupils who score in the bottom three stanines in reading, math, or both, will be preliminarily identified as PSEN.

Lists produced by these data will then be reviewed by building staffs to assure appropriate identification. Individual pupils may be added or listed pupils deleted when corroborating evidence--othertesting such as PEP, grades, general performance--indicates that the achievement test score is an inappropriate measurement.

Final lists will be maintained in each building with a copy filed in the office of the Assistant Superintendent for Instruction.

Each pupil identified by the above procedure will continue to be considered PSEN until such time as it is determined that compensatory education of some sort is no longer required. This determination can be made on the basis of the pupil's academic performance or on test scores. Generally, a pupil who scores in the fourth stanine or within one-half year of grade level should be considered for removal from a PSEN list. In no case should a pupil who scores at grade level or in the fifth stanine continue to be identified PSEN.

Building PSEN lists should be kept with running update and the district lists will be revised periodically.

6B - Relationship of Compensatory Education Programs

Compensatory education programs operate separately but are inter-related. This is brought about, at least partly, by sources of funding. For example, only two of our seven elementary schools are approved as targets for ESEA Title I funds.

Coordination of these inter-related programs is provided by the Assistant Superintendent for Instruction. In addition, placement and monitoring of individual pupils in the various programs available is done by a committee of specialists referred to as "clinic" in each building. The clinic, composed of such persons as psychologists, speech therapists, reading consultants, and building principals, meet regularly to review individual pupil needs, develop prescriptions and assign programs.

6C - Program Goals

The major goal of the PSEN program in the Gates Chili Central Schools is to promote the development of the students into fully-functioning, literate adults--adults who can survive in a world which continually requires a person to read, communicate and figure. Literate adults will be able to read and fill out the variety of forms (IRS' W-2 Withholding statement and 1040, driver's license application, catalog order, book-of-the-month club, loan application, check writing, etc.) required to survive in a bureaucratic society. They will be able to read and follow directions (where and how to install an air conditioner, where and how to plant flowers, how to put up a swing set, how to bake and cook, etc.) They will be able to read and understand

basic survival types of information (driver's training manual, traffic citation, terms of a lease, insurance contracts, care instructions for new clothing, telephone book, TV schedule, road maps, etc.)

Literate adults will also be able to function in the mathematical world which surrounds them. They will be able to double or halve the quantities in a recipe, figure the square footage/yardage needed for a floor covering, estimate the cost of a restaurant bill from the menu, figure sales tax on purchases, comparison shop, understand utility and tax statements, balance a checking account, figure miles per gallon, estimate the cost of a trip, etc.

This major goal of the Gates Chili School's PSEN program--the literate adult--is in keeping with the goals set by the New York State Education Department via the requirement that each student pass the Basic Competency Tests in order to qualify for a high school diploma. The training to become a literate adult contained in the district's program is intended to enable the student to demonstrate the minimum competency levels set for these exams in the areas of reading and mathematics.

APPENDIX B

Data Coding Key

APPENDIX B

Data Coding Key

PSEN Study

Variable No.	Columns	
X	1 - 3	Student Number
1	4 & 5	Metropolitan Reading Readiness - Raw Score
2	6 & 7	Part 1 - Word Meaning
3	8 & 9	Part 2 - Listening
4	10 & 11	Part 3 - Matching
5	12 & 13	Part 4 - Alphabet
6	14 & 15	Part 5 - Numbers
7	16 & 17	Part 6 - Copying
8	18 & 19	Total Percentile
9	20	Letter Rating
10	21	Draw a Man
11	22 & 23	Receptive Language - Early Primary Language Development Screening
12	24 & 25	Auditory Memory - Early Primary Language Development Screening
13	26 & 27	Sound Blending - Early Primary Language Development Screening
14	28 & 29	Auditory Discrimination - Early Primary Language Development Screening
15	30 & 31	Total - Early Primary Language Development Screening
16	32	Number of Employed Parents
17	33 & 34	Socioeconomic index

Variable No.	Columns	
18	35 & 36	Number of children living in the home
19	37	Number of languages spoken in the home
20	38 & 39	Boehm Test of Basic Concepts - Raw Score
21	40 & 41	Boehm Test of Basic Concepts - Percentile
22	42 & 43	Myklebust Behavior Rating Scale - Spoken Language
23	44 & 45	Myklebust Behavior Rating Scale - Auditory Comprehension
24	46 & 47	Myklebust Behavior Rating Scale - Personal-Social Behavior
25	48 & 49	Myklebust Behavior Rating Scale - Orientation
26	50 & 51	Locus of Control - Keyed to externality
27	52	Locus of Control designation 2 = E, 1 = I, 3 = E & I
28	53 & 54	Matching Familiar Figures number of correct responses on first try
29	55 & 56	Matching Familiar Figures number of errors
30	57, 58, 59	Matching Familiar Figures average length of time for first response
31	60	Identification of 1 = impulsivity and 2 = reflectivity
32	61 & 62	Fryburg - Syntactic Screening - Receptive Language
33	63 & 64	Fryburg - Syntactic Screening - Expressive Language
34	65 & 66	Detroit, Auditory Attention Span - M.A.
35	67, 68, 69	Slosson I.Q. Screening Test
36	70 & 71	Metropolitan Achievement Word Knowledge
37	72 & 73	Metropolitan Achievement Word Analysis
38	74 & 75	Metropolitan Achievement Reading

APPENDIX C

Sample Pages from Primary Language

Development Screening Test

APPENDIX C

EARLY PRIMARY LANGUAGE DEVELOPMENT SCREENING TEST

Name _____ School _____

Age _____ Grade Placement _____ Teacher _____

Date _____ Form of Test _____

Test Behavior

Attention Span	yes _____	no _____
Prone to Guessing	yes _____	no _____
Ability to Follow Directions	yes _____	no _____

TEST 1	Receptive Language	(25)	_____
TEST 2	Auditory Memory Span	(12)	_____
TEST 3	Sound Blending	(10)	_____
TEST 4	Auditory Discrimination	(13)	_____
	Subtotal	(60)	_____

Expressive skills check list

Verbal Expression	(18)	_____
Sentence Complexity	(6)	_____
Content and Sequencing	(21)	_____
Subtotal	(45)	_____
Total Instrument	(105)	_____

Test 4 - Auditory Discrimination

Materials: Crayon or pencil; cardboard marker

Directions: Form A

Say: OPEN YOUR BOOKLETS TO THE PAGE WITH THE SMILING FACE AT THE TOP.

(Hold up booklet opened to correct page. Check to be sure all children have found it.)

Sample Item 1:

Say: PUT YOUR MARKER UNDER THE ROW WITH THE SMILING FACE. THERE ARE THREE BOXES.

(Hold up booklet and point to each box)

NOW PUT YOUR FINGER ON THE FIRST BOX. THIS BOX HAS A DUCK AND A DOCK. MOVE YOUR FINGER TO THE (MIDDLE) SECOND BOX. THIS BOX HAS A DOCK AND A DOCK. NOW MOVE YOUR FINGER TO THE LAST BOX. THIS BOX HAS A DUCK AND A DUCK.

Say: MARK THE BOX WHICH SHOWS A DUCK AND A DUCK.

*Items may be repeated as often as necessary.

Say: WHICH BOX DID YOU MARK. RIGHT, YOU SHOULD HAVE MARKED THE LAST BOX. (Hold up booklet and show box) THIS BOX SHOWS A DUCK AND A DUCK.

Sample Item 2:

Say: MOVE YOUR MARKER DOWN TO THE ROW WITH THE CHAIR. POINT TO THE FIRST BOX - THIS SHOWS A BOAT AND A BOAT. NOW POINT TO THE NEXT BOX - THIS HAS A BOAT AND A COAT. NOW POINT TO THE LAST BOX. THIS HAS A COAT AND A COAT.

Say: MARK THE BOX WHICH HAS A BOAT AND A COAT.

Review item with the group and be sure that everyone has marked the middle box.

Proceed in a similar fashion for test items.

1. Identify all pairs of pictures before naming pair to be marked.

2. DO NOT CHECK ANSWERS ON TEST ITEMS. However, check periodically to be sure children are working on correct item.

3. Pairs to be marked may be repeated as often as necessary.

ROW SYMBOL	PAIRS	ITEM TO BE MARKED
page 21		
lollipop	cat-cat cat-bat bat-bat	CAT - CAT
flower	pen-pin pen-pen pin-pin	PIN - PIN
ball	comb-comb cone-cone cone-comb	CONE - COMB
(page 22)		
scissors	pan-pen pen-pen pan-pan	PEN - PEN
boat	log-lock lock- lock log-log	LOCK - LOCK
frog	clown-clown crown-crown clown-crown	CLOWN - CROWN
pear	rock-rock lock-lock rock-lock	ROCK - LOCK
kite	wash-wash watch-watch wash-watch	WASH - WASH
(page 23)		
football	vase-vase face-face vase-face	FACE - FACE
cowboy hat	mouth-mouth mouse-mouth mouse-mouse	MOUSE - MOUTH
leaf	nut-nut knot-nut knot-knot	KNOT - NUT
cup	cat-cat cap-cap cap-cat	CAT - CAT
born	chip-ship ship-ship chip-chip	SHIP - SHIP

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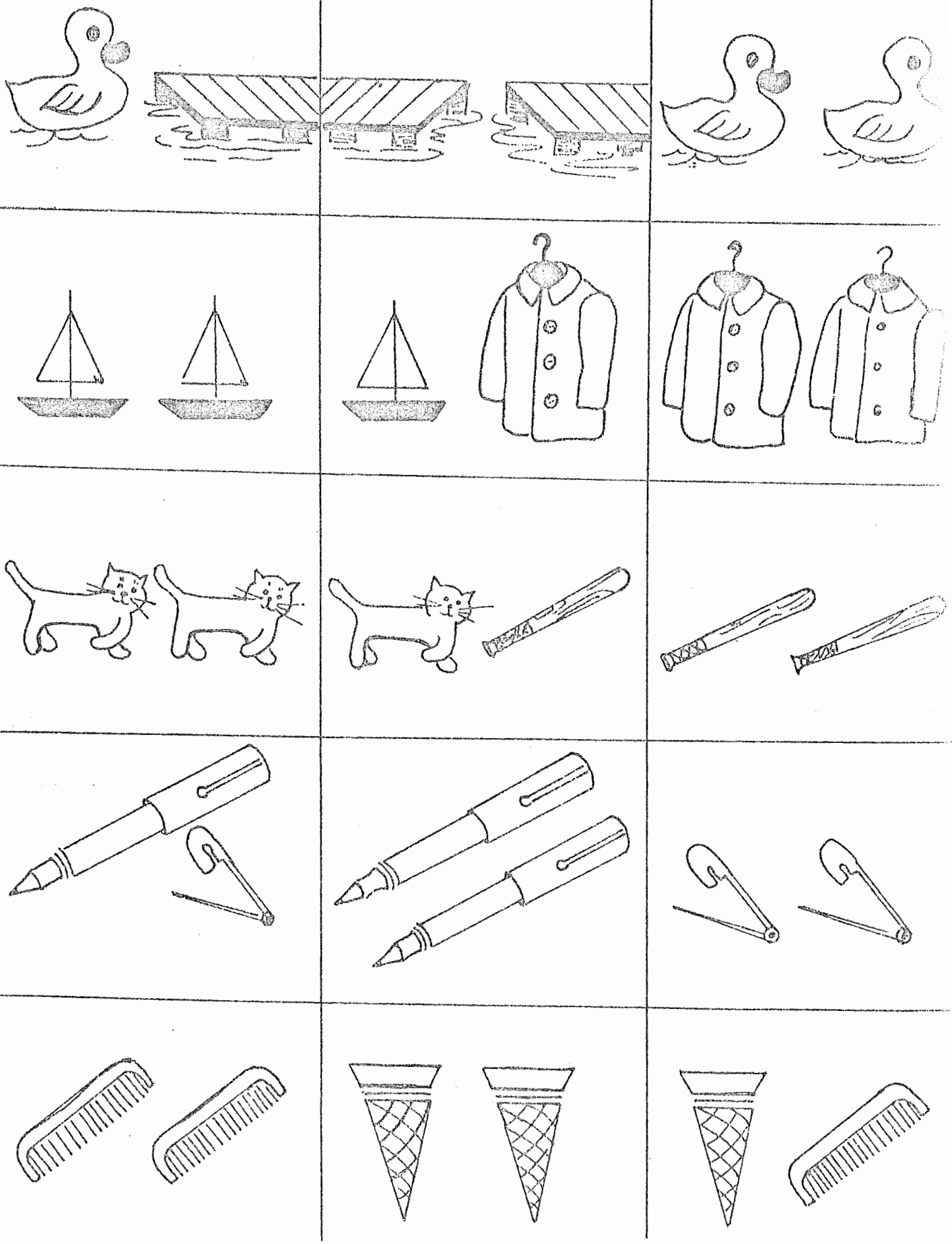


APPENDIX D

Fryburg Test of Cognition

Syntactic Screening

Sample Pages

APPENDIX D

III. Auditory and Visual Perception

Syntactic Screening

SAY TO THE PUPIL:

Receptive: I am going to tell you about some pictures I shall show you. (Say a sentence for each picture on the demonstration page, e.g., The man has a ball, etc.) Point to the picture I tell you about. (Say one sentence at a time, as the child indicates which picture is being referred to).

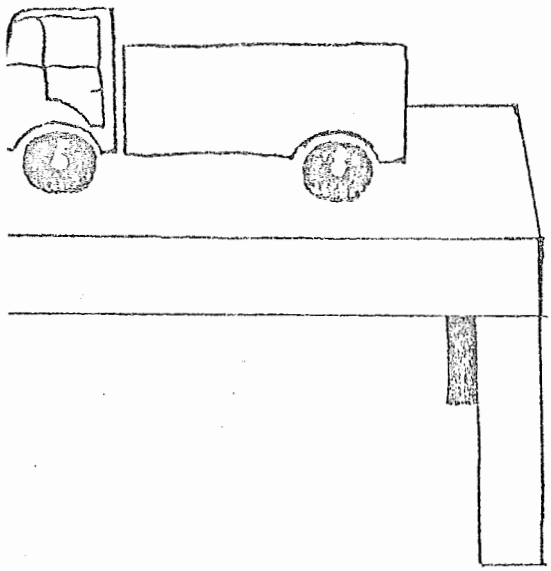
(Demonstrate all the receptive pictures first. The asterisk which follows one of the pairs of sentences should be elicited first from the child.)

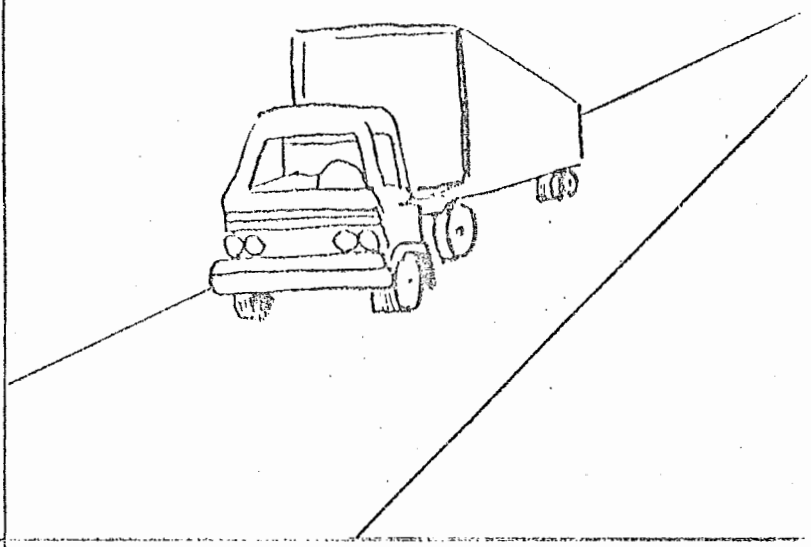
Score: 1 for each correct indication, 2 if both are correct.

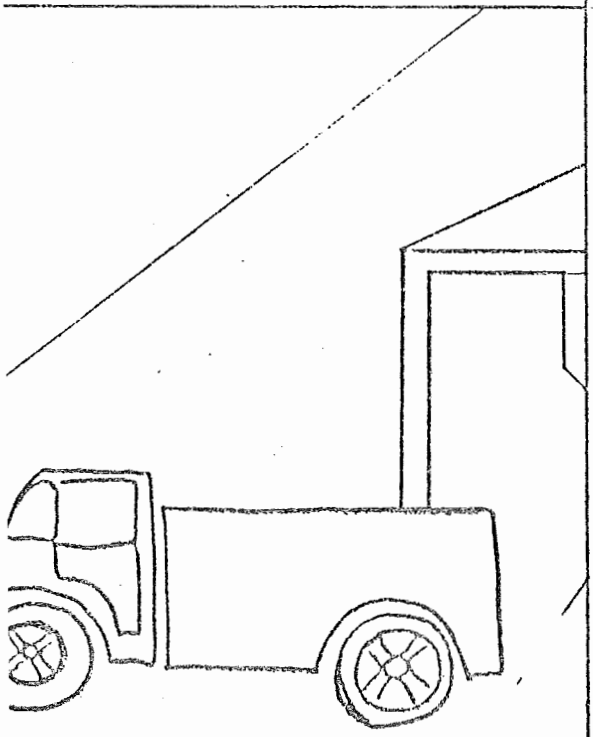
Expressive: Now I shall tell you about some other pictures, and when I point to the picture, you will tell me what I told you about the picture. (Say each of the sentences. Then the sentence with the asterisk is elicited from the child first. The examiner points to the picture, and the child teels about the picture.)

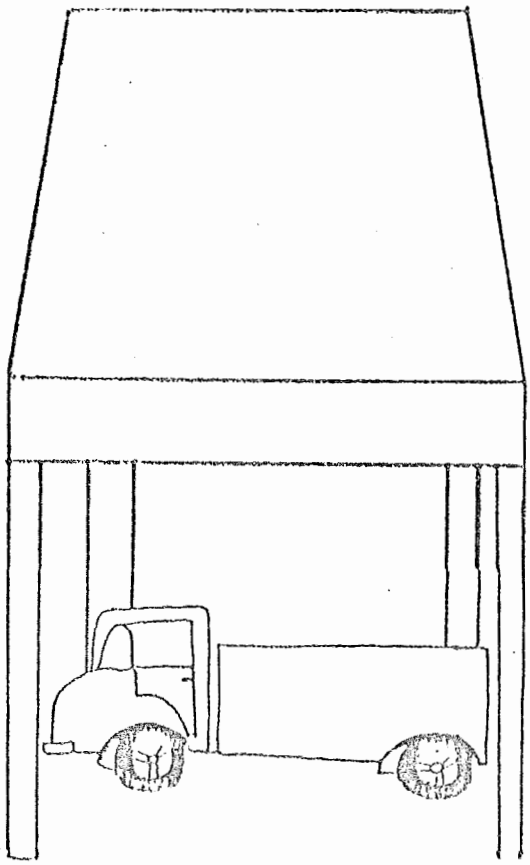
Score: 1 for each correct repetition, 2 if both sentences are correct. No errors. Errors include omissions, substitutions, additions, changes in words or in order of words, but not contractions, e.g., we're for we are.

	Receptive	Expressive
1.	The truck is on the table. _____ The truck is under the table.* __	The boy is drinking.* _____ The boy is not drinking. _____
2.	The girl is standing.* _____ The girl is not standing. _____	The ball is behind the chair. __ The ball is under the chair.* __
3.	The girl sees the boy. _____ The girl sees the boys.* _____	The dog chases the cat.* _____ The cat chases the dog. _____
4.	The dog sees himself.* _____ The dog sees the shelf. _____	The cat sees the bird. _____ The cat sees the birds.* _____
5.	The wagon hits the train. _____ The train hits the wagon.* _____	The man washes himself.* _____ The man washes the shelf. _____
6.	This is a mother bird.* _____ This is Mother's bird. _____	This is a baby elephant. _____ This is Baby's elephant.* _____
7.	The boy walked. _____ The boy walks.* _____	The girl skipped.* _____ The girl skips. _____
8.	Has John finished lunch?* _____ John has finished lunch. _____	The book is on the shelf. _____ Is the book on the shelf?* _____
9.	This is my coat.* _____ That is my coat. _____	That is my ball.* _____ This is my ball. _____
10.	The man shows the boy the dog. _____ The man shows the dog the boy.* _____	The mother brings the brother the sister.* _____ The mother brings the sister the brother. _____









APPENDIX E

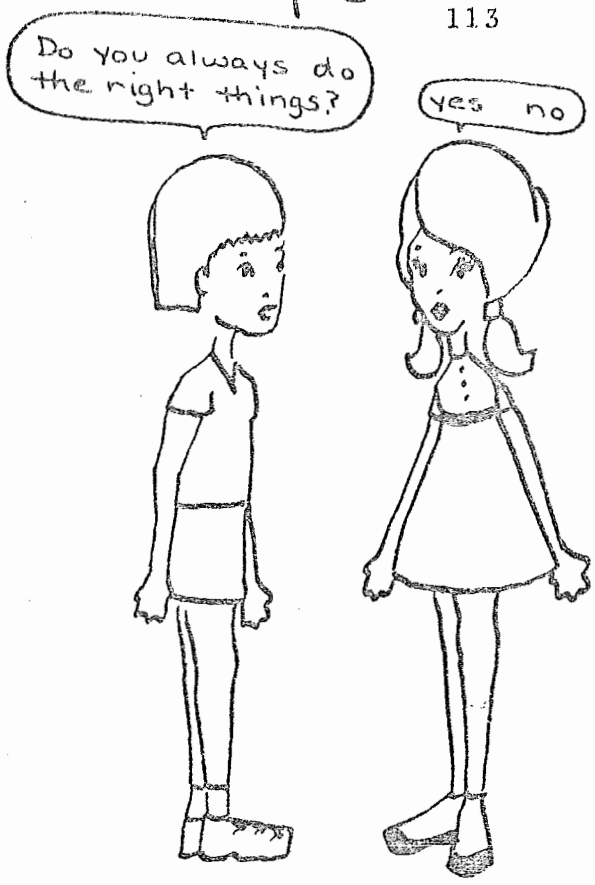
The Preschool and Primary Form of the Nowicki-Strickland Locus of Control

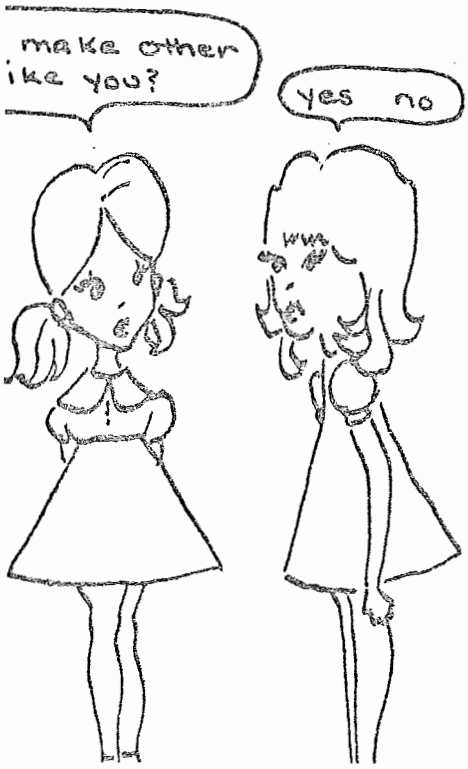
PPNSIE

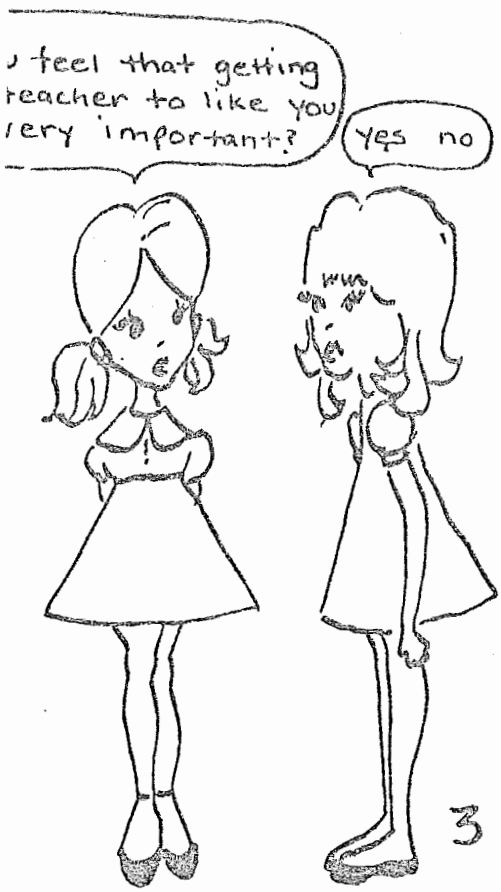
for girls

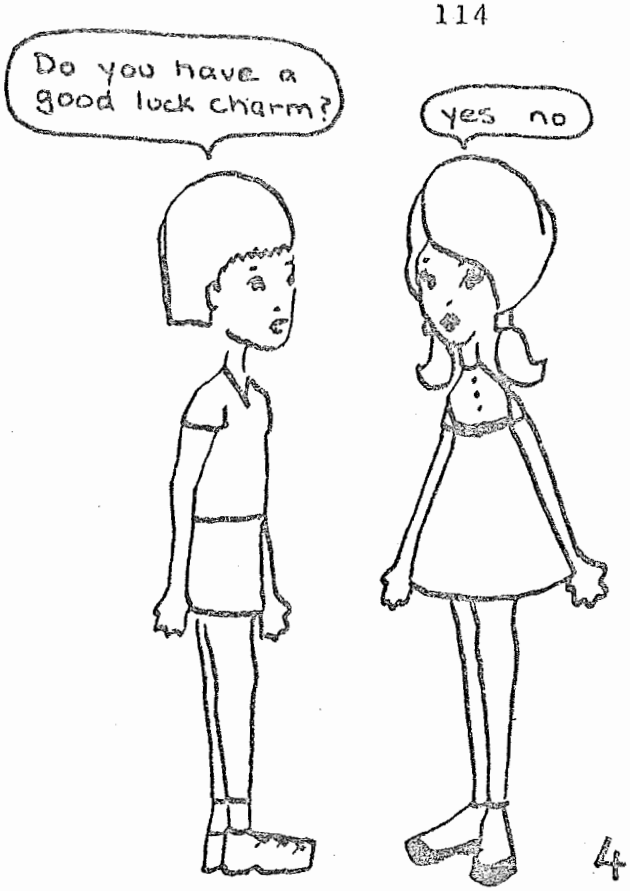
swicki/M.Duke 1973

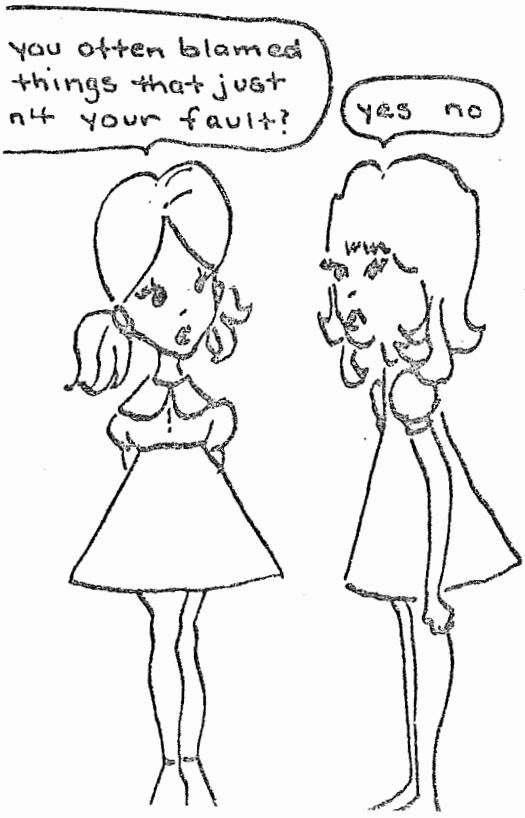
Example

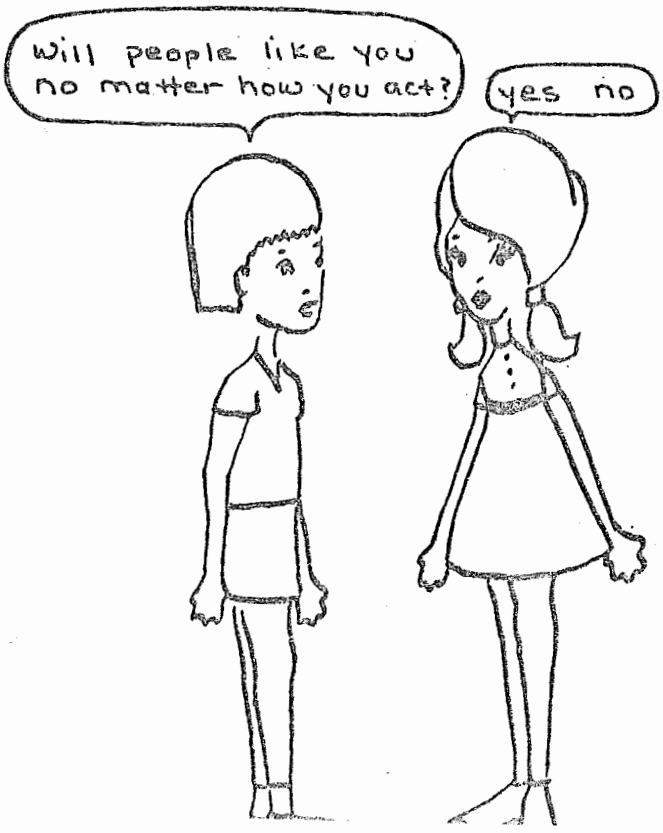


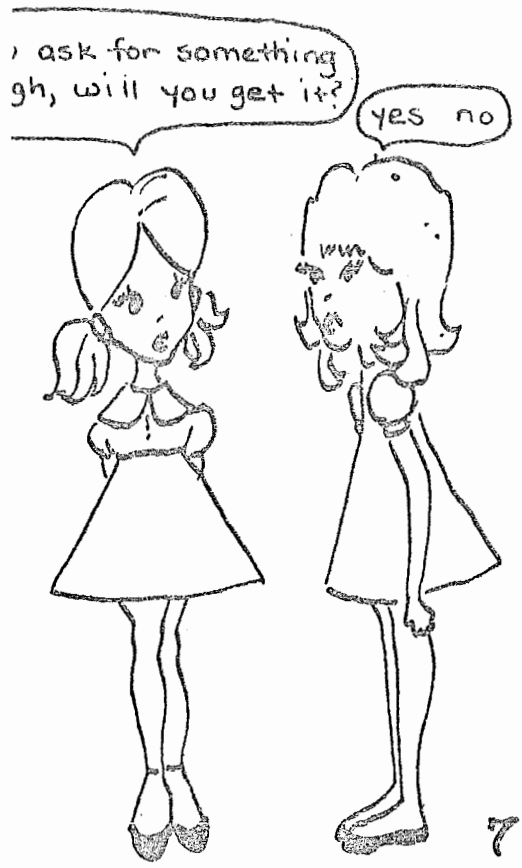


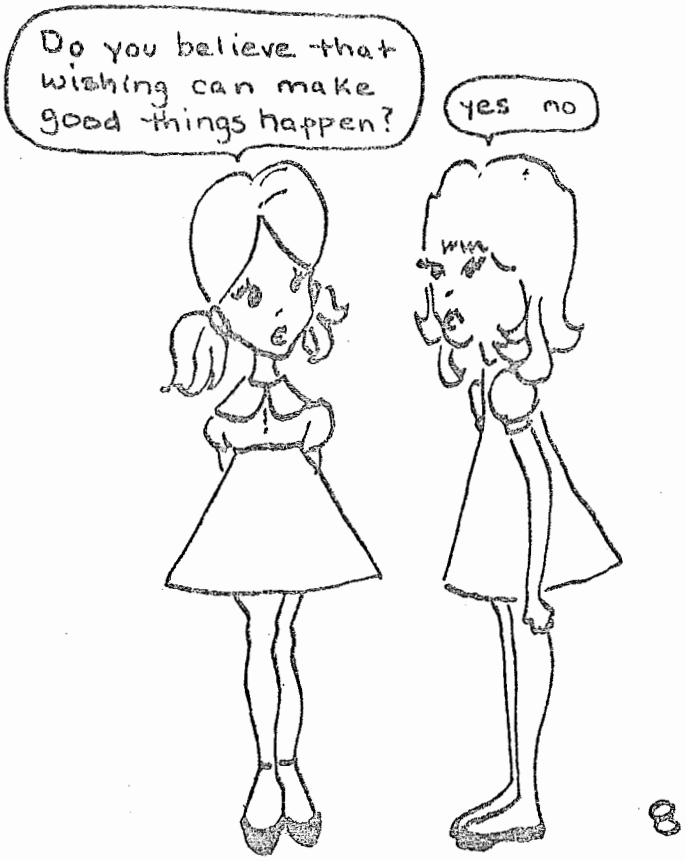

o feel that getting
reacher to like you
rery important?
yes no
3

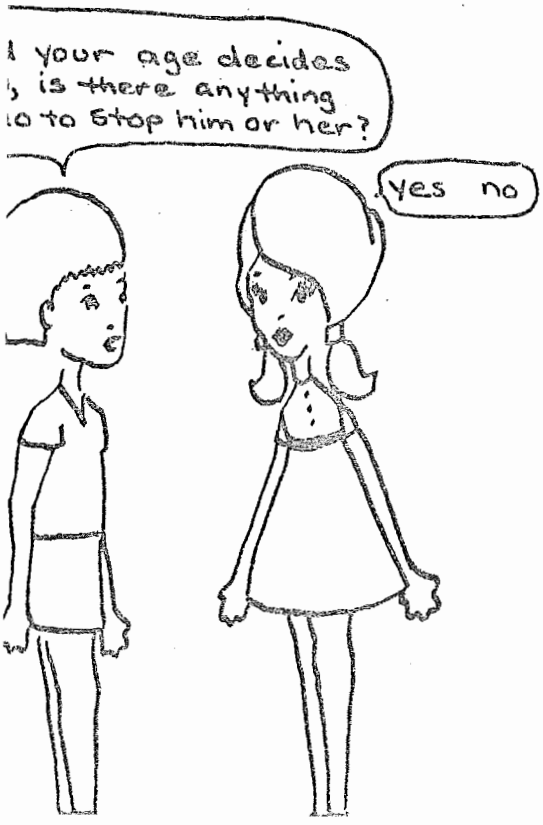

Do you have a
good luck charm?
yes no
4


you often blamed
things that just
nt your fault?
yes no

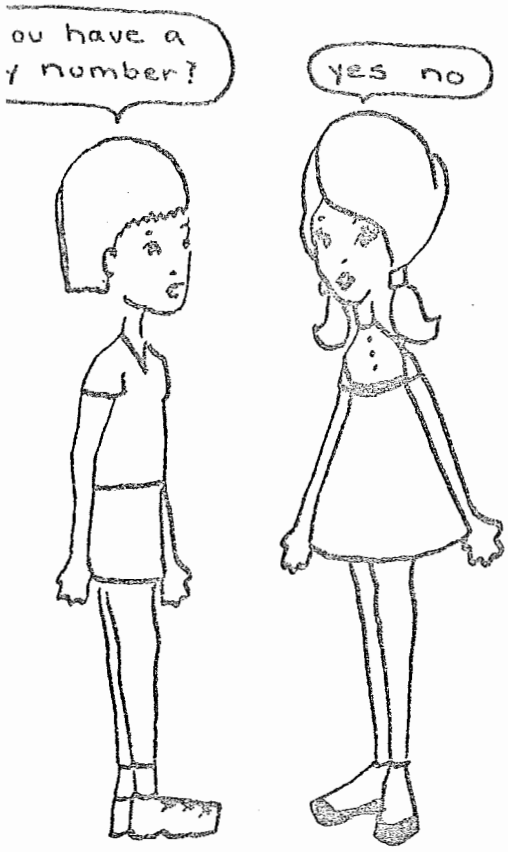

Will people like you
no matter how you act?
yes no


ask for something
gh, will you get it?
yes no
7


Do you believe that wishing can make good things happen?
yes no
8


your age decides
is there anything
to stop him or her?
yes no

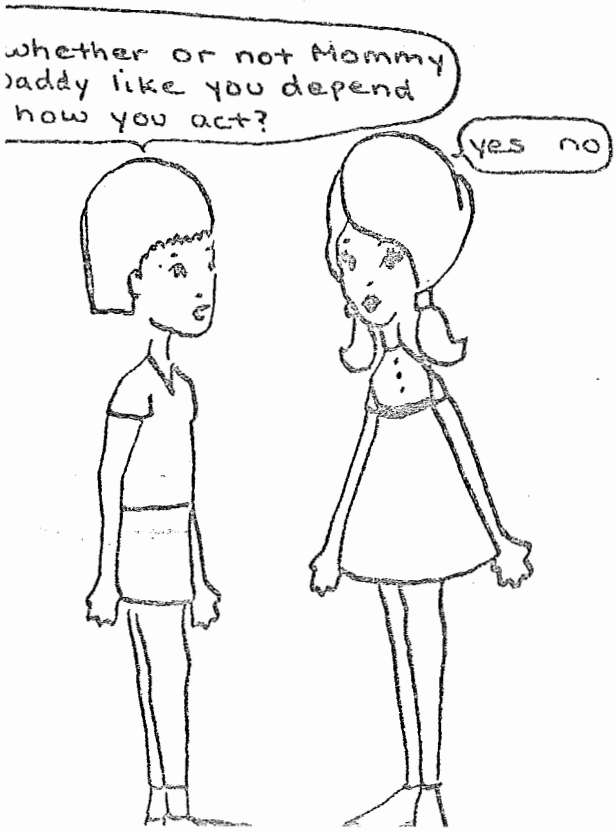

Can you get friends to do what you want them to do?
yes no

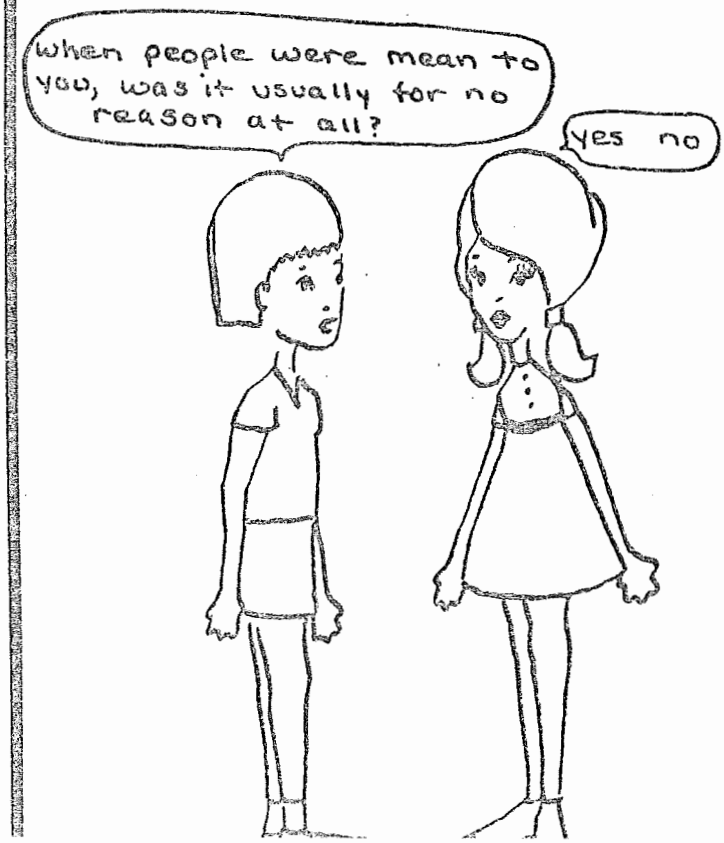

ou have a
y number?
yes no

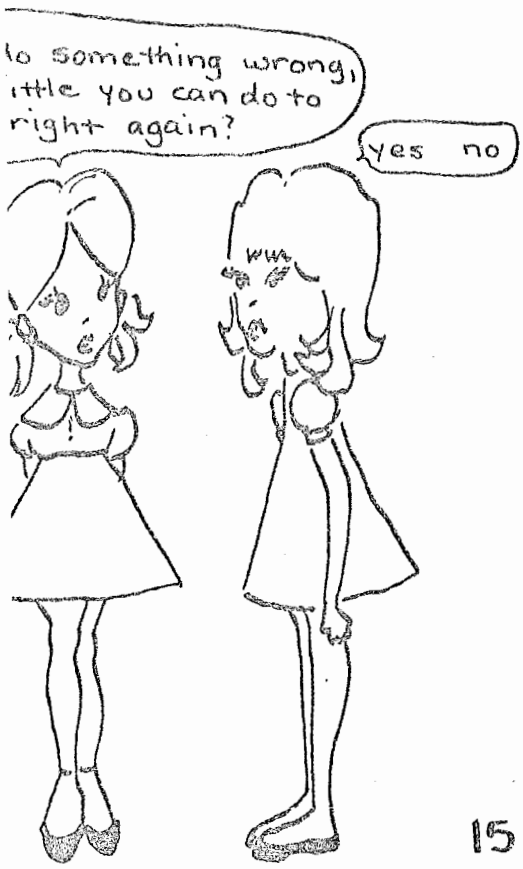
11


Can you get your Mommy and Daddy to do what you want to do instead of what they want to do?
yes no

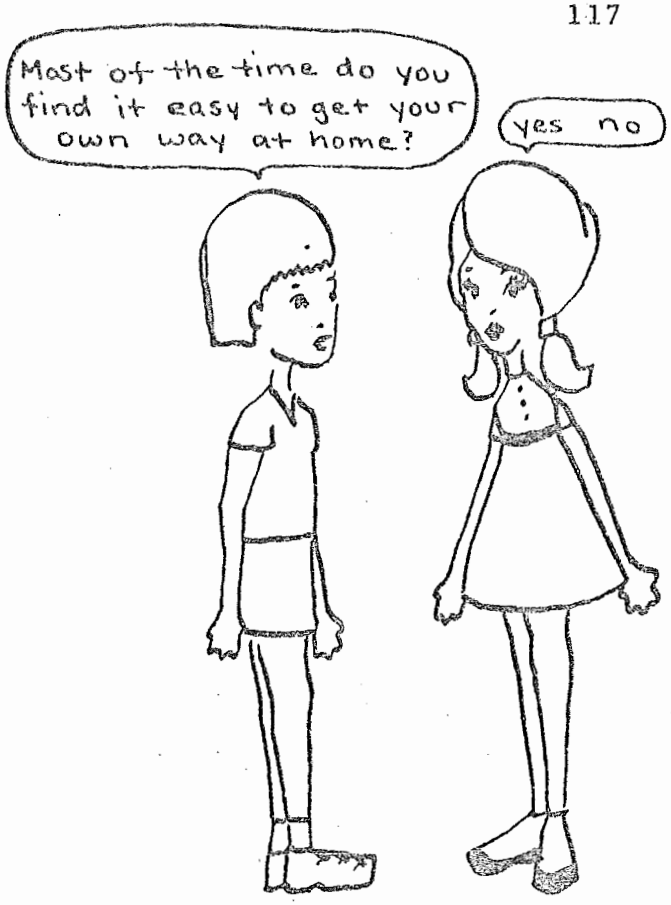
12


whether or not Mommy
Daddy like you depend
how you act?
yes no

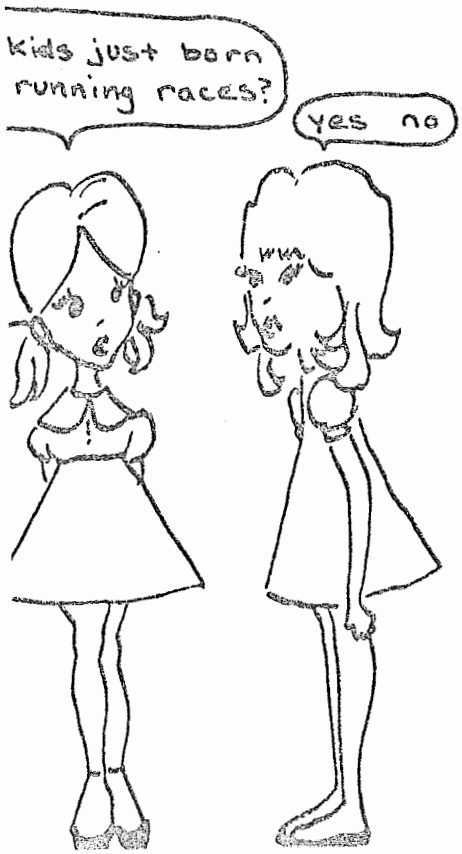

when people were mean to you, was it usually for no reason at all?
yes no

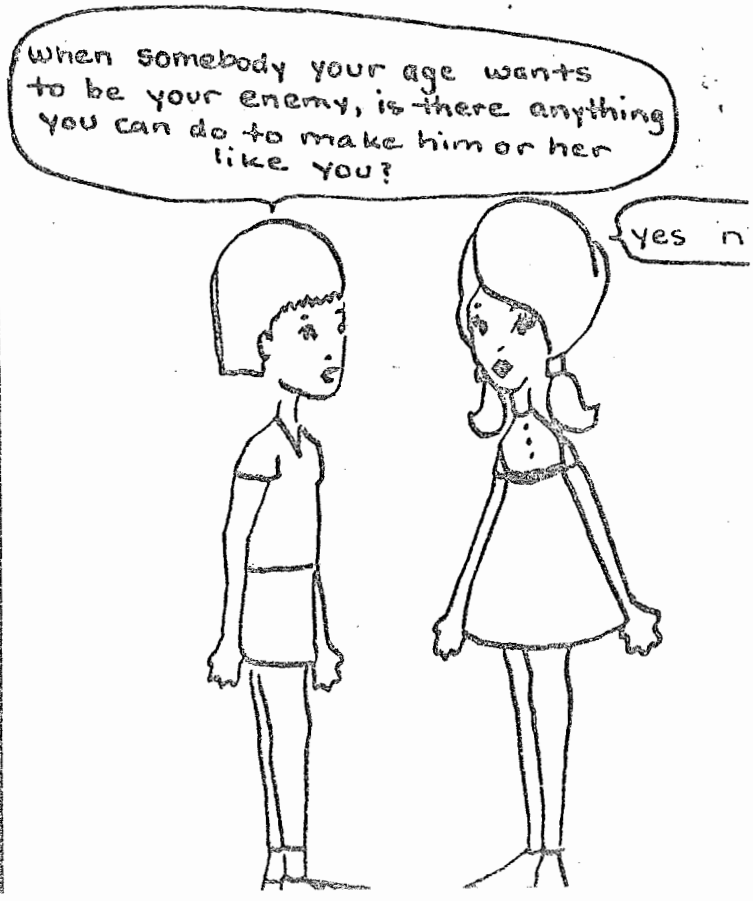

lo something wrong,
ittle you can do to
right again?
yes no

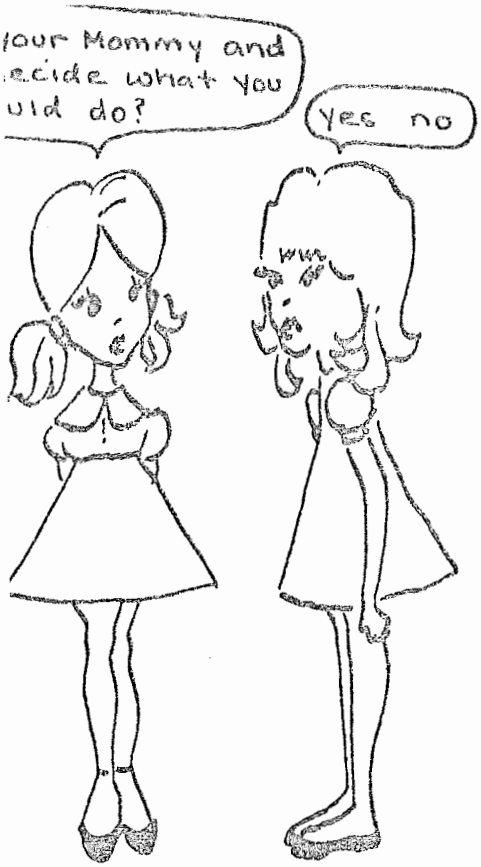
15


Most of the time do you find it easy to get your own way at home?
yes no

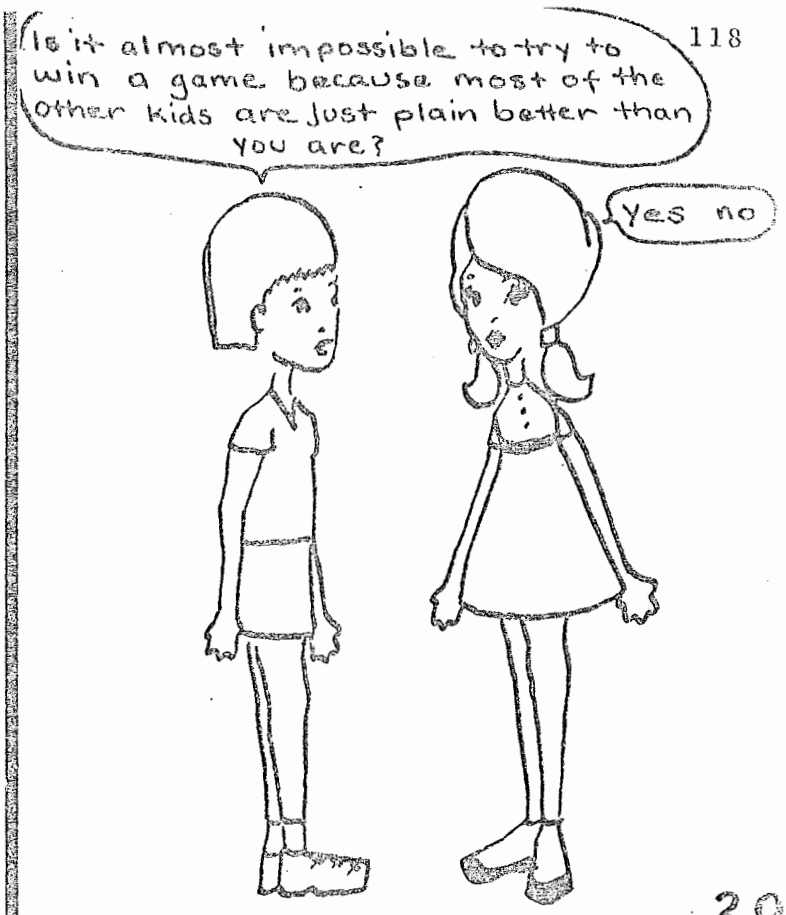
16


kids just born running races?
yes no

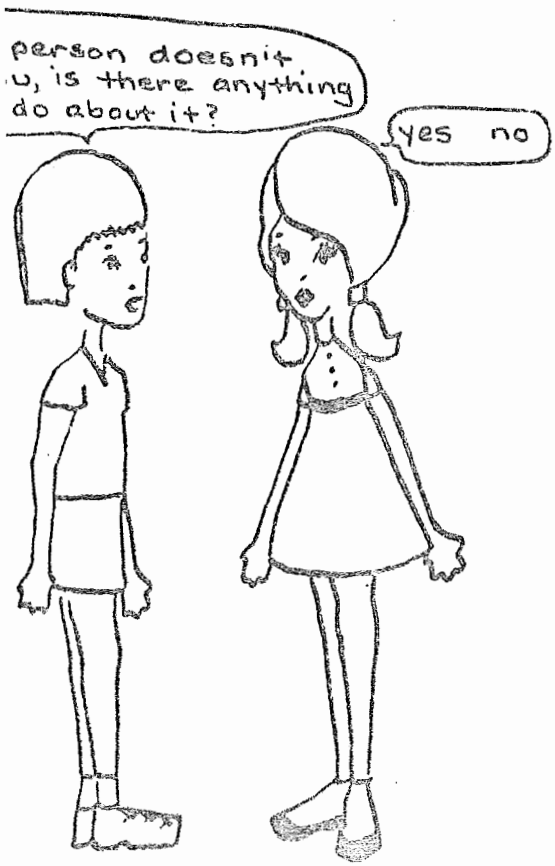

When somebody your age wants to be your enemy, is there anything you can do to make him or her like you?
yes n


our Mommy and
ecide what you
uld do?
yes no

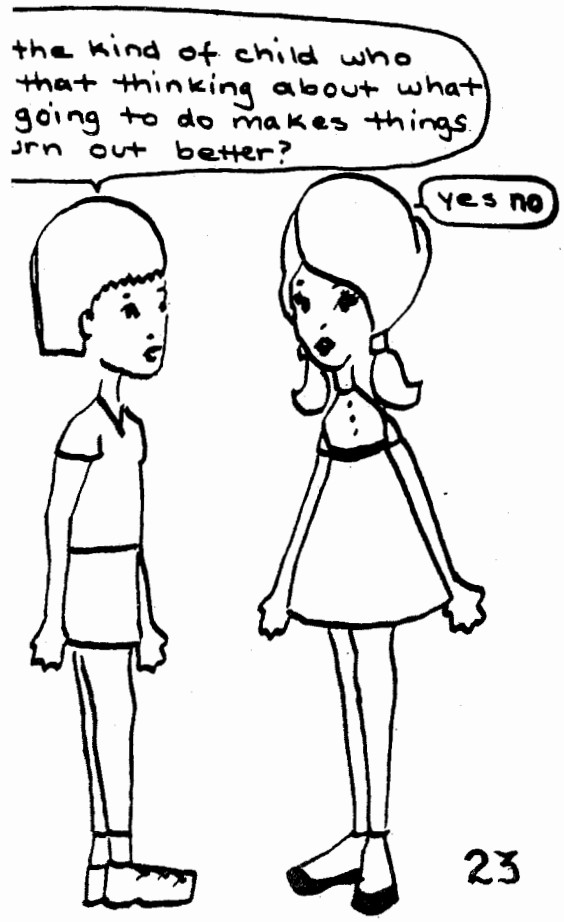
19


Is it almost impossible to try to win a game because most of the other kids are just plain better than you are?
yes no

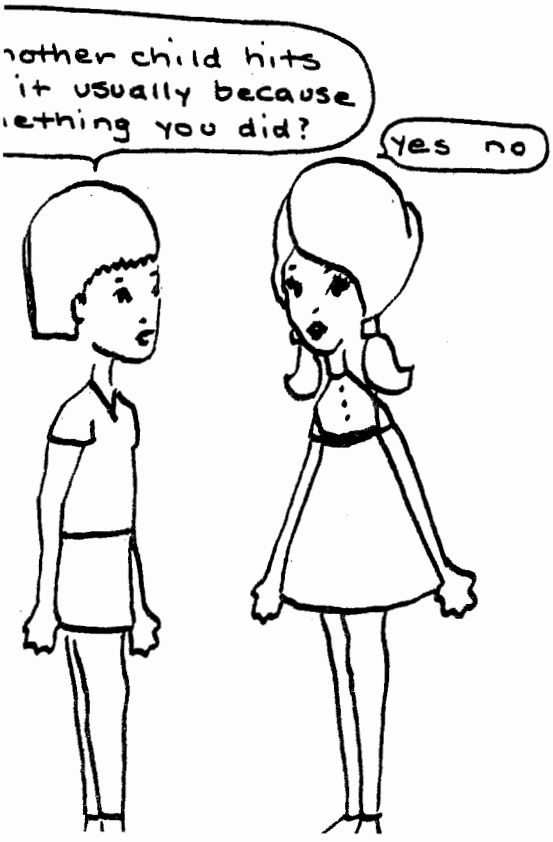
20


person doesn't
u, is there anything
do about it?
yes no

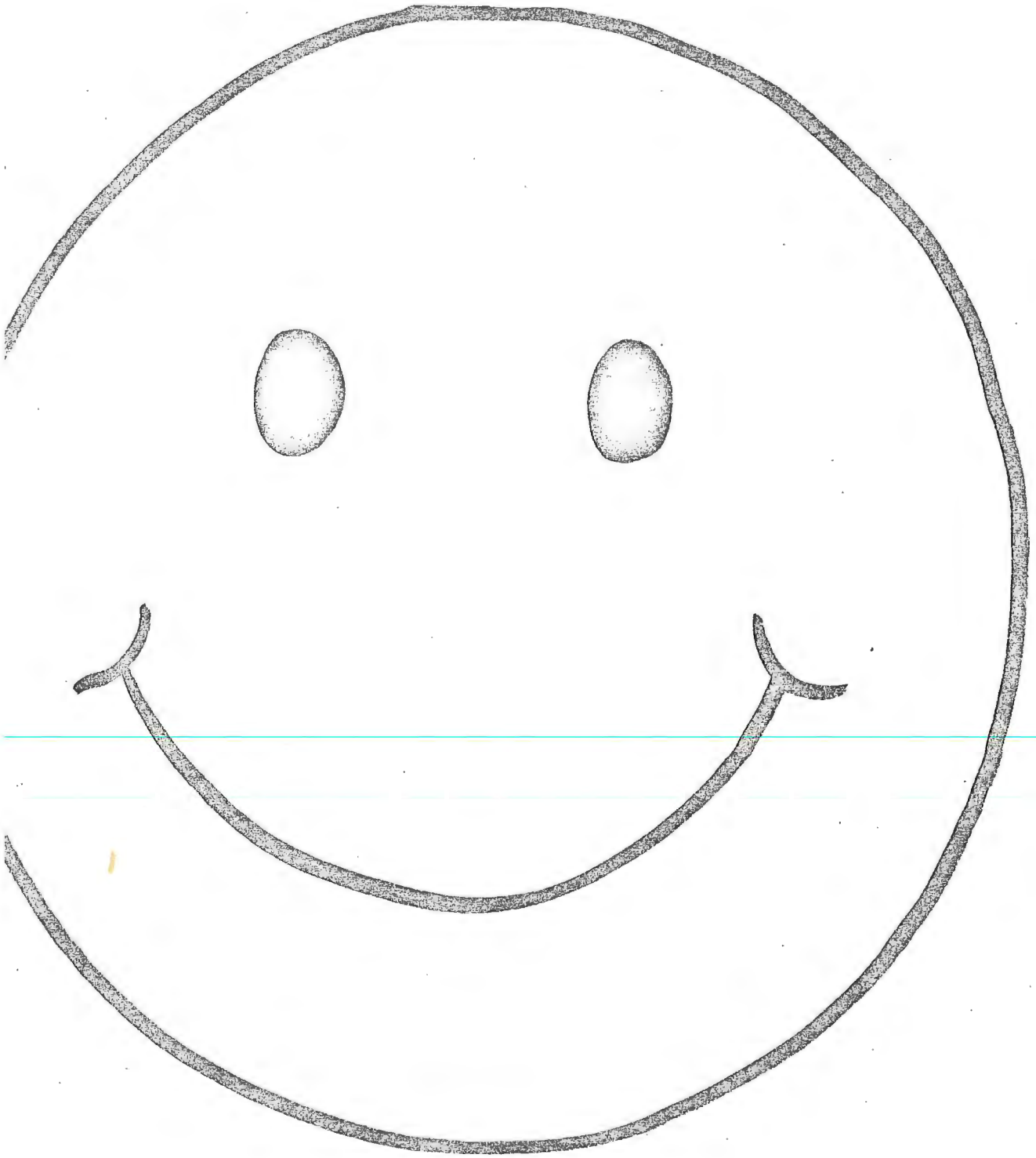

Are most of the other girls your age stronger than you are?
yes no


the kind of child who
that thinking about what
going to do makes things
urn out better?
yes no
23


Do you think it's better
to be smart than to
be lucky?
yes no
24


nother child hits
it usually because
ething you did?
yes no


is one of the best ways
to handle a problem just
not to think about it?
yes no



APPENDIX F

Matching Familiar Figures Test

Sample Pages

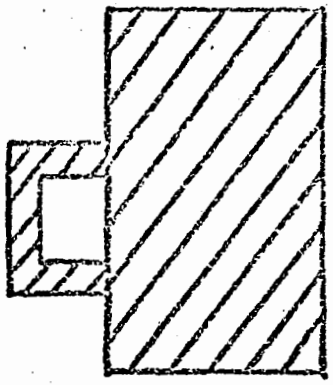
APPENDIX F

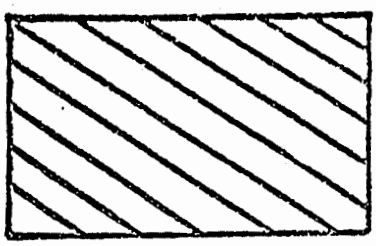
MATCHING FAMILIAR FIGURES

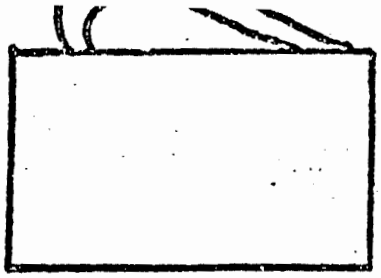
Name_____ Date_____

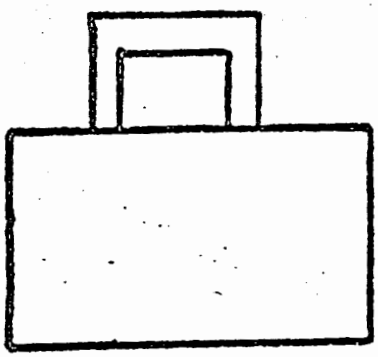
Grade_____ Teacher_____

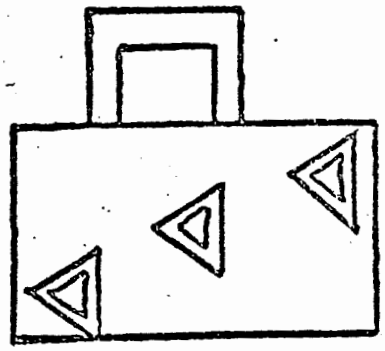
								Time for 1st Response
1.	(block w/handle)	A	B	C	D	E	F	
2.	(ruler)	A	B	C	D	E	F	
3.	(house)	A	B	C	D	E	F	
4.	(scissor)	A	B	C	D	E	F	
5.	(telephone)	A	B	C	D	E	F	
6.	(chair w. t. bear)	A	B	C	D	E	F	
7.	(tree)	A	B	C	D	E	F	
8.	(leaf)	A	B	C	D	E	F	
9.	(cat)	A	B	C	D	E	F	
10.	(coat)	A	B	C	D	E	F	
11.	(rooster/giraffe)	A	B	C	D	E	F	
12.	(lamp)	A	B	C	D	E	F	
13.	(boat)	A	B	C	D	E	F	
14.	(cowboy)	A	B	C	D	E	F	

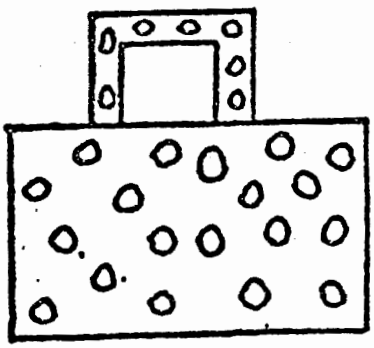


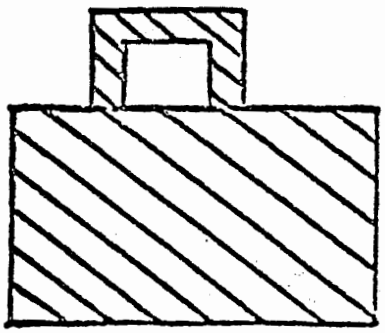












APPENDIX G

Socioeconomic Record Sheet

APPENDIX G

SOCIOECONOMIC RECORD SHEET

Name:_____ Teacher_____

Address:_____Phone Number_____

Birthdate_____ Age_____ years_____ months

Father's name _____ Mother's name_____

Parent's occupation: Mother _____

Father _____

Other members in family:

_____ _____ _____

_____ _____ _____

_____ _____ _____

APPENDIX H

Socioeconomic Status Rating Scale

(Reiss, 1961)

APPENDIX B

Table B-1.—Socioeconomic Index for Occupations in the Detailed Classification of the Bureau of the Census: 1950

Occupations, by Major Occupation Group	Socio-economic Index	Transform to NORC Scale	Population Decile Scale	Notes*
Professional, technical, and kindred workers				
Accountants and auditors	78	80	10	a
Actors and actresses	60	74	9	—
Airplane pilots and navigators	79	81	10	a
Architects	90	86	10	a
Artists and art teachers	67	76	10	b
Athletes	52	71	9	—
Authors	76	80	10	a
Chemists	79	81	10	a
Chiropractors	75	79	10	—
Clergymen	52	71	9	a
College presidents, professors, and instructors (n. e. c.)	84	83	10	a
Dancers and dancing teachers	45	69	8	—
Dentists	96	93	10	a
Designers	73	79	10	—
Dieticians and nutritionists	39	67	7	d
Draftsmen	67	76	10	—
Editors and reporters	82	82	10	a
Engineers, technical	85	83	10	c
Aeronautical	87	85	10	—
Chemical	90	87	10	—
Civil	84	83	10	a
Electrical	84	83	10	—
Industrial	86	84	10	—
Mechanical	82	83	10	—
Metallurgical, and metallurgists	82	83	10	—
Mining	85	83	10	—
Not elsewhere classified	87	85	10	—
Entertainers (n. e. c.)	31	64	6	—
Farm- and home-management advisors	83	83	10	b
Foresters and conservationists	48	70	8	—
Funeral directors and embalmers	59	74	9	a
Lawyers and judges	93	89	10	a
Librarians	60	74	9	—
Musicians and music teachers	52	71	9	b
Natural scientists (n. e. c.)	80	81	10	b
Nurses, professional	46	70	8	—
Nurses, student professional	51	71	9	d

* See end of table for explanation of "Notes."

Table B-1—Socioeconomic Index for Occupations in the Detailed Classification of the Bureau of the Census: 1950 (Cont'd.)

Occupations, by Major Occupation Group	*Socio-economic Index*	*Transform to NORC Scale*	*Population Decile Scale*	*Notes*
Optometrists	79	81	10	—
Osteopaths	96	93	10	—
Personnel and labor-relations workers	84	83	10	—
Pharmacists	82	82	10	—
Photographers	50	71	9	—
Physicians and surgeons	92	89	10	a
Radio operators	69	77	10	—
Recreation and group workers	67	76	10	b
Religious workers	56	72	9	—
Social and welfare workers, except group	64	75	9	a
Social scientists	81	82	10	b
Sports instructors and officials	64	75	9	—
Surveyors	48	70	8	—
Teachers (n. e. c.)	72	78	10	a
Technicians, medical and dental	48	70	8	—
Technicians, testing	53	72	9	—
Technicians (n. e. c.)	62	74	9	—
Therapists and healers (n. e. c.)	58	73	9	—
Veterinarians	78	81	10	—
Professional, technical, and kindred workers (n. e. c.)	65	75	9	—
Farmers and farm managers				
Farmers (owners and tenants)	14	53	3	b
Farm managers	36	66	7	—
Managers, officials, and proprietors, exc. farm				
Buyers and department heads, store	72	78	10	—
Buyers and shippers, farm products	33	65	7	—
Conductors, railroad	58	73	9	a
Credit men	74	79	10	—
Floormen and floor managers, store	50	71	9	—
Inspectors, public administration	63	75	9	c
Federal public administration and postal service	72	78	10	—
State public administration	54	72	9	—
Local public administration	56	72	9	—
Managers and superintendents, building	32	65	7	—
Officers, pilots, pursers, and engineers, ship	54	72	9	—
Officials and administrators (n. e. c.), public administration	66	76	10	c
Federal public administration and postal service	84	83	10	—
State public administration	66	76	10	—
Local public administration	54	72	9	—
Officials, lodge, society, union, etc.	58	73	9	b
Postmasters	60	74	9	—

Table B-1.—Socioeconomic Index for Occupations in the Detailed Classification of the Bureau of the Census: 1950 (Cont'd.)

Occupations, by Major Occupation Group	*Socio-economic Index*	*Transform to NORC Scale*	*Population Decile Scale*	*Notes*
Purchasing agents and buyers (n. e. c.)	77	80	10	—
Managers, officials, and proprietors (n. e. c.)—salaried	68	77	10	c
Construction	60	74	9	—
Manufacturing	79	81	10	—
Transportation	71	78	10	—
Telecommunications, and utilities and sanitary services	76	80	10	—
Wholesale trade	70	77	10	—
Retail trade	56	72	9	c
Food- and dairy-products stores, and milk retailing	50	70	8	—
General merchandise and five- and ten-cent stores	68	77	10	—
Apparel and accessories stores	69	77	10	—
Furniture, home furnishings, and equipment stores	68	77	10	—
Motor vehicles and accessories retailing	65	75	9	—
Gasoline service stations	31	65	7	—
Eating and drinking places	39	68	8	—
Hardware, farm implement, and building material, retail	64	75	9	—
Other retail trade	59	74	9	—
Banking and other finance	85	84	10	—
Insurance and real estate	84	83	10	—
Business services	80	81	10	—
Automobile repair services and garages	47	70	8	—
Miscellaneous repair services	53	71	9	—
Personal services	50	71	9	—
All other industries (incl. not reported)	62	74	9	—
Managers, officials, and proprietors (n. e. c.)—self-employed	48	70	8	c
Construction	51	71	9	a
Manufacturing	61	74	9	a
Transportation	43	69	8	—
Telecommunications and utilities and sanitary services	44	69	8	—
Wholesale trade	59	74	9	—
Retail trade	43	69	8	a, c
Food- and dairy-products stores, and milk retailing	33	65	7	—
General merchandise and five-and-ten-cent stores	47	70	8	—
Apparel and accessories stores	65	75	9	—
Furniture, home furnishings, and equipment stores	59	73	9	—

Table B-1—Socioeconomic Index for Occupations in the Detailed Classification of the Bureau of the Census: 1950 (Cont'd.)

Occupations, by Major Occupation Group	Socio-economic Index	Transform to NORC Scale	Population Decile Scale	Notes
Motor vehicles and accessories retailing	70	77	10	—
Gasoline service stations	33	65	7	—
Eating and drinking places	37	67	7	b
Hardware, farm implement, and building material, retail	61	74	9	—
Other retail trade	49	70	8	—
Banking and other finance	85	84	10	a
Insurance and real estate	76	80	10	—
Business services	67	76	10	—
Automobile repair services and garages	36	66	7	—
Miscellaneous repair services	34	65	7	—
Personal services	41	68	8	—
All other industries (incl. not reported)	49	70	8	—
Clerical and kindred workers				
Agents (n. e. c.)	68	77	10	—
Attendants and assistants, library	44	69	8	d
Attendants, physician's and dentist's office	38	67	7	d
Baggagemen, transportation	25	61	6	—
Bank tellers	52	71	9	—
Bookkeepers	51	71	9	a
Cashiers	44	69	8	—
Collectors, bill and account	39	68	8	—
Dispatchers and starters, vehicle	40	68	8	—
Express messengers and railway mail clerks	67	76	10	—
Mail-carriers	53	71	9	a
Messengers and office boys	28	63	6	—
Office-machine operators	45	69	8	—
Shipping and receiving clerks	22	60	6	—
Stenographers, typists, and secretaries	61	74	9	—
Telegraph messengers	22	59	6	—
Telegraph operators	47	70	8	—
Telephone operators	45	69	8	—
Ticket, station, and express agents	60	74	9	—
Clerical and kindred workers (n. e. c.)	44	69	8	—
Sales Workers				
Advertising agents and salesmen	66	76	10	—
Auctioneers	40	68	8	—
Demonstrators	35	66	7	—
Hucksters and peddlers	8	46	2	—
Insurance agents and brokers	66	76	10	a
Newsboys	27	63	6	—
Real-estate agents and brokers	62	74	9	—

Table B-1—Socioeconomic Index for Occupations in the Detailed Classification of the Bureau of the Census: 1950 (Cont'd.)

Occupations, by Major Occupation Group	*Socio-economic Index*	*Transform to NORC Scale*	*Population Decile Scale*	*Notes*
Stock and bond salesmen	73	79	10	—
Salesmen and sales clerks (n. e. c.)	47	70	8	c
Manufacturing	65	75	9	—
Wholesale trade	61	74	9	b
Retail trade	39	67	7	a
Other industries (incl. not reported)	50	71	9	—
Craftsmen, foremen, and kindred workers				
Bakers	22	60	6	—
Blacksmiths	16	55	4	—
Boilermakers	33	65	7	—
Bookbinders	39	67	7	—
Brickmasons, stonemasons, and tile-setters	27	62	6	—
Cabinetmakers	23	60	6	—
Carpenters	19	58	5	a
Cement and concrete finishers	19	58	5	—
Compositors and typesetters	52	71	9	—
Cranemen, derrickmen, and hoistmen	21	59	5	—
Decorators and window-dressers	40	68	8	—
Electricians	44	69	8	a
Electrotypers and stereotypers	55	72	9	—
Engravers, except photoengravers	47	70	8	—
Excavating, grading, and road-machinery operators	24	61	6	—
Foremen (n. e. c.)	49	70	8	c
Construction	40	68	8	—
Manufacturing	53	71	9	c
Metal industries	54	72	9	—
Machinery, including electrical	60	74	9	—
Transportation equipment	66	76	10	—
Other durable goods	41	68	8	—
Textiles, textile products, and apparel	39	68	8	—
Other nondurable goods (incl. not specified mfg.)	53	72	9	—
Railroads and railway express service	36	66	7	—
Transportation, except railroad	45	69	8	—
Telecommunications, and utilities and sanitary services	56	73	9	—
Other industries (incl. not reported)	44	69	8	—
Forgemen and hammermen	23	60	6	—
Furriers	39	67	7	—
Glaziers	26	62	6	—
Heat treaters, annealers, and temperers	22	60	6	—
Inspectors, scalers, and graders, log and lumber	23	60	6	—

Table B-1—Socioeconomic Index for Occupations in the Detailed Classification of the Bureau of the Census: 1950 (Cont'd.)

Occupations, by Major Occupation Group	*Socio-economic Index*	*Transform to NORC Scale*	*Population Decile Scale*	*Notes*
Inspectors (n. e. c.)	41	68	8	c
Construction	46	70	8	—
Railroads and railway express service	41	68	8	—
Transport, exc. r.r., communication, and other public util.	45	69	8	—
Other industries (incl. not reported)	38	67	7	—
Jewelers, watchmakers, goldsmiths, and silversmiths	36	66	7	—
Job-setters, metal	26	63	6	—
Linemen and servicemen, telegraph, telephone, and power	49	70	8	—
Locomotive engineers	58	73	9	a
Locomotive firemen	45	69	8	—
Loom fixers	10	49	2	—
Machinists	33	65	7	a
Mechanics and repairmen	25	61	6	c
Airplane	48	70	8	—
Automobile	19	58	5	a
Office machine	36	66	7	—
Radio and television	36	66	7	—
Railroad and car shop	23	60	6	—
Not elsewhere classified	27	62	6	—
Millers, grain, flour, feed, etc.	19	58	5	—
Millwrights	31	65	7	—
Molders, metal	12	51	2	—
Motion-picture projectionists	43	69	8	—
Opticians, and lens grinders and polishers	39	67	7	—
Painters, construction and maintenance	16	56	4	—
Paperhangers	10	48	2	—
Pattern- and model-makers, except paper	44	69	8	—
Photoengravers and lithographers	64	75	9	—
Piano and organ tuners and repairmen	38	67	7	—
Plasterers	25	61	6	—
Plumbers and steam-fitters	34	66	7	a
Pressmen and plate printers, printing	49	70	8	—
Rollers and roll hands, metal	22	60	6	—
Roofers and slaters	15	54	4	—
Shoemakers and repairers, except factory	12	51	2	—
Stationary engineers	47	70	8	—
Stone-cutters and stone-carvers	25	61	6	—
Structural-metal workers	34	66	7	—
Tailors and tailoresses	23	60	6	—
Tinsmiths, coppersmiths, and sheet-metal workers	33	65	7	—
Toolmakers, and die-makers and setters	50	71	9	—
Upholsterers	22	60	6	—
Craftsmen and kindred workers (n. e. c.)	32	65	7	—
Members of the armed forces	18	56	4	e

Table B-1—Socioeconomic Index for Occupations in the Detailed Classification of the Bureau of the Census: 1950 (Cont'd.)

Occupations, by Major Occupation Group	Socio-economic Index	Transform to NORC Scale	Population Decile Scale	Notes
Operatives and kindred workers				
Apprentices	35	66	7	c
Auto mechanics	25	61	6	—
Bricklayers and masons	32	65	7	—
Carpenters	31	64	6	—
Electricians	37	67	7	—
Machinists and toolmakers	41	68	8	—
Mechanics, except auto	34	66	7	—
Plumbers and pipe-fitters	33	65	7	—
Building trades (n. e. c.)	29	63	6	—
Metalworking trades (n. e. c.)	33	65	7	—
Printing trades	40	68	8	—
Other specified trades	31	64	6	—
Trade not specified	39	67	7	—
Asbestos and insulation workers	32	65	7	—
Attendants, auto service and parking	19	58	5	a
Blasters and powdermen	11	50	2	—
Boatmen, canalmen, and lock-keepers	24	61	6	—
Brakemen, railroad	42	69	8	—
Bus-drivers	24	61	6	—
Chainmen, rodmen, and axmen, surveying	25	61	6	—
Conductors, bus and street railway	30	64	6	—
Deliverymen and routemen	32	65	7	—
Dressmakers and seamstresses, except factory	23	60	6	—
Dyers	12	51	2	—
Filers, grinders, and polishers, metal	22	59	6	—
Fruit, nut, and vegetable graders and packers, exc. factory	10	48	2	—
Furnacemen, smeltermen, and pourers	18	57	4	—
Heaters, metal	29	64	6	—
Laundry and dry-cleaning operatives	15	54	4	b
Meat-cutters, except slaughter and packing house	29	63	6	—
Milliners	46	70	8	d
Mine operatives and laborers (n. e. c.)	10	49	2	c
Coal mining	2	25	1	a
Crude petroleum and natural gas extraction	38	67	7	—
Mining and quarrying, except fuel	12	51	2	—
Motormen, mine, factory, logging camp, etc.	3	28	1	—
Motormen, street, subway, and elevated railway	34	65	7	a
Oilers and greasers, except auto	15	54	4	—
Painters, except construction and maintenance	18	57	5	—
Photographic-process workers	42	68	8	—
Power-station operators	50	71	9	—
Sailors and deck hands	16	55	4	—
Sawyers	5	39	1	—
Spinners, textile	5	39	1	—

Table B-1—Socioeconomic Index for Occupations in the Detailed Classification of the Bureau of the Census: 1950 (Cont'd.)

Occupations, by Major Occupation Group	Socio-economic Index	Transform to NORC Scale	Population Decile Scale	Notes
Stationary firemen	17	56	4	—
Switchmen, railroad	44	69	8	—
Taxicab-drivers and chauffeurs	10	49	2	a
Truck- and tractor-drivers	15	54	4	a
Weavers, textile	6	42	1	—
Welders and flame-cutters	24	61	6	—
Operatives and kindred workers (n. e. c.)	18	57	4	c
Manufacturing	17	56	4	a, c
Durable goods				
Sawmills, planing mills, and misc. wood products	7	44	2	c
Sawmills, planing mills, and mill work	7	44	2	—
Miscellaneous wood products	9	46	2	—
Furniture and fixtures	9	48	2	—
Stone, clay, and glass products	17	56	4	c
Glass and glass products	23	60	6	—
Cement; and concrete, gypsum; and plaster products	10	48	2	—
Structural clay products	10	48	2	—
Pottery and related products	21	59	5	—
Misc. nonmetallic mineral and stone products	15	54	4	—
Metal industries	16	55	4	c
Primary metal industries	15	54	4	c
Blast furnaces, steel works, and rolling mills	17	56	4	—
Other primary iron and steel industries	12	51	2	—
Primary nonferrous industries	15	54	4	—
Fabricated metal ind. (incl. not spec. metal)	16	55	4	c
Fabricated steel products	16	55	4	—
Fabricated nonferrous metal products	15	54	4	—
Not specified metal industries	14	53	3	d
Machinery, except electrical	22	60	6	c
Agricultural machinery and tractors	21	59	5	—
Office and store machines and devices	31	64	6	—
Miscellaneous machinery	22	59	6	—
Electrical machinery, equipment, and supplies	26	62	6	—
Transportation equipment	23	60	6	:
Motor vehicles and motor vehicle equipment	21	59	5	—
Aircraft and parts	34	65	7	—
Ship and boat building and repairing	16	55	4	—
Railroad and misc. transportation equipment	23	60	6	—
Professional and photographic equipment and watches	29	63	6	c

Table B-1—Socioeconomic Index for Occupations in the Detailed Classification of the Bureau of the Census: 1950 (Cont'd.)

Occupations, by Major Occupation Group	Socio-economic Index	Transform to NORC Scale	Population Decile Scale	Notes
Professional equipment and supplies	23	60	6	—
Photographic equipment and supplies	40	68	8	—
Watches, clocks, and clockwork-operated devices	28	63	6	—
Miscellaneous manufacturing industries	16	55	4	—
Nondurable goods				
Food and kindred products	16	55	4	c
Meat products	16	55	4	—
Dairy products	22	59	6	—
Canning and preserving fruits, vegetables, and sea foods	9	47	2	—
Grain-mill products	14	53	4	—
Bakery products	15	54	4	—
Confectionery and related products	12	51	2	—
Beverage industries	19	58	5	—
Misc. food preparations and kindred products	11	50	2	—
Not specified food industries	19	57	5	—
Tobacco manufactures	2	26	1	—
Textile mill products	6	42	1	c
Knitting mills	21	59	5	—
Dyeing and finishing textiles, exc. knit goods	8	45	2	—
Carpets, rugs, and other floor coverings	14	53	4	—
Yarn, thread, and fabric mills	2	26	1	—
Miscellaneous textile mill products	10	49	2	—
Apparel and other fabricated textile products	21	59	6	c
Apparel and accessories	22	60	6	—
Miscellaneous fabricated textile products	17	56	4	—
Paper and allied products	19	57	5	c
Pulp, paper, and paperboard mills	19	58	5	—
Paperboard containers and boxes	17	56	4	—
Miscellaneous paper and pulp products	19	58	5	—
Printing, publishing, and allied industries	31	64	6	—
Chemicals and allied products	20	59	5	c
Synthetic fibers	9	47	2	—
Drugs and medicines	26	62	6	—
Paints, varnishes, and related products	15	54	4	—
Miscellaneous chemicals and allied products	23	60	6	—
Petroleum and coal products	51	71	9	c
Petroleum refining	56	72	9	—
Miscellaneous petroleum and coal products	14	53	3	—
Rubber products	22	60	6	—
Leather and leather products	16	55	4	c
Leather: tanned, curried, and finished	10	49	2	—
Footwear, except rubber	9	47	2	—

Table B-1—Socioeconomic Index for Occupations in the Detailed Classification of the Bureau of the Census: 1950 (Cont'd.)

Occupations, by Major Occupation Group	Socio-economic Index	Transform to NORC Scale	Population Decile Scale	Notes
Leather products, except footwear	14	53	3	—
Not specified manufacturing industries	16	55	4	—
Nonmanufacturing industries (incl. not reported)	18	57	4	c
Construction	18	57	5	—
Railroads and railway express service	15	54	4	—
Transportation, except railroad	23	60	6	—
Telecommunications, and utilities and sanitary services	21	59	5	—
Wholesale and retail trade	17	56	4	—
Business and repair services	19	57	5	—
Personal services	11	50	2	—
Public administration	17	56	4	—
All other industries (incl. not reported)	20	59	5	—
Private-household workers				
Housekeepers, private household	19	58	5	c
Living in	10	49	2	d
Living out	21	59	5	—
Laundresses, private household	12	51	2	d
Living in	—	—	—	d
Living out	12	51	2	d
Private-household workers (n. e. c.)	7	44	2	c
Living in	12	51	2	—
Living out	6	42	1	—
Service workers, except private household				
Attendants, hospital and other institution	13	52	2	—
Attendants, professional and personal service (n. e. c.)	26	62	6	—
Attendants, recreation and amusement	19	58	5	—
Barbers, beauticians, and manicurists	17	56	4	a
Bartenders	19	58	5	a
Boarding- and lodging-house keepers	30	64	6	—
Bootblacks	8	46	2	a
Charwomen and cleaners	10	48	2	—
Cooks, except private household	15	54	4	a
Counter and fountain workers	17	56	4	a
Elevator operators	10	48	2	—
Firemen, fire protection	37	67	7	—
Guards, watchmen, and doorkeepers	18	57	5	a
Housekeepers and stewards, except private household	31	65	7	—
Janitors and sextons	9	47	2	a
Marshals and constables	21	59	6	—
Midwives	37	67	7	d

Table B-1.—Socioeconomic Index for Occupations in the Detailed Classification of the Bureau of the Census: 1950 (Cont'd.)

Occupations, by Major Occupation Group	Socio-economic Index	Transform to NORC Scale	Population Decile Scale	Notes
Policemen and detectives	39	68	8	c
Government	40	68	8	a
Private	36	66	7	—
Porters	4	36	1	—
Practical nurses	22	59	6	—
Sheriffs and bailiffs	34	66	7	—
Ushers, recreation and amusement	25	61	6	—
Waiters and waitresses	16	55	4	a
Watchmen (crossing) and bridge-tenders	17	56	4	—
Service workers, except private household (n. e. c.)	11	50	2	—
Farm laborers and foremen				
Farm foremen	20	59	5	—
Farm laborers, wage workers	6	42	1	b
Farm laborers, unpaid family workers	17	56	4	—
Farm-service laborers, self-employed	22	60	6	—
Laborers, except farm and mine				
Fishermen and oystermen	10	49	2	b
Garage laborers, and car-washers and greasers	8	46	2	—
Gardeners, except farm, and groundskeepers	11	50	2	—
Longshoremen and stevedores	11	50	2	b
Lumbermen, raftsmen, and wood-choppers	4	36	1	b
Teamsters	8	46	2	—
Laborers (n. e. c.)				
Manufacturing	8	45	2	c
Durable goods				
Sawmills, planing mills, and misc. wood products	3	33	1	c
Sawmills, planing mills, and mill work	3	34	1	—
Miscellaneous wood products	2	23	1	—
Furniture and fixtures	5	40	1	—
Stone, clay, and glass products	7	43	2	c
Glass and glass products	14	53	3	—
Cement; and concrete, gypsum, and plaster prod.	5	39	1	—
Structural clay products	5	39	1	—
Pottery and related products	7	44	2	—
Misc. nonmetallic mineral and stone products	5	38	1	—
Metal industries	7	44	2	c
Primary metal industries	7	44	2	c
Blast furnaces, steel works, and rolling mills	9	46	2	—
Other primary iron and steel industries	4	37	1	—
Primary nonferrous industries	6	42	1	—

Table B-1—Socioeconomic Index for Occupations in the Detailed Classification of the Bureau of the Census: 1950 (Cont'd.)

Occupations, by Major Occupation Group	Socio-economic Index	Transform to NORC Scale	Population Decile Scale	Notes
Fabricated metal ind. (incl. not spec. metal)	7	44	2	c
Fabricated steel products	7	44	2	—
Fabricated nonferrous metal products	10	49	2	—
Not specified metal industries	9	46	2	d
Machinery, except electrical	11	50	2	c
Agricultural machinery and tractors	14	53	3	—
Office and store machines and devices	17	56	4	d
Miscellaneous machinery	10	48	2	—
Electrical machinery, equipment, and supplies	14	53	3	—
Transportation equipment	11	49	2	c
Motor vehicles and motor vehicle equipment	13	52	2	—
Aircraft and parts	15	54	4	—
Ship and boat building and repairing	2	28	1	—
Railroad and misc. transportation equipment	8	45	2	—
Professional and photographic equipment, and watches	11	50	2	—
Professional equipment and supplies	10	49	2	d
Photographic equipment and supplies	16	55	4	d
Watches, clocks, and clockwork-operated devices	—	—	—	d
Miscellaneous manufacturing industries	12	50	2	—
Nondurable goods				
Food and kindred products	9	47	2	c
Meat products	8	45	2	—
Dairy products	13	52	2	—
Canning and preserving fruits, veget., and sea foods	6	42	1	—
Grain-mill products	6	42	1	—
Bakery products	10	48	2	—
Confectionery and related products	10	48	2	—
Beverage industries	16	55	4	—
Misc. food preparations and kindred products	5	40	1	—
Not specified food industries	14	53	3	—
Tobacco manufactures	0	20	1	f
Textile mill products	3	33	1	c
Knitting mills	4	36	1	d
Dyeing and finishing textiles, exc. knit goods	9	46	2	d
Carpets, rugs and other floor coverings	14	53	3	—
Yarn, thread, and fabric mills	1	22	1	—
Miscellaneous textile-mill products	6	41	1	d
Apparel and other fabricated textile products	9	47	2	c
Apparel and accessories	11	49	2	—
Miscellaneous fabricated textile products	6	42	1	d
Paper and allied products	7	43	2	c
Pulp, paper, and paperboard mills	6	41	1	—

Table B-1—Socioeconomic Index for Occupations in the Detailed Classification of the Bureau of the Census: 1950 (Cont'd.)

Occupations, by Major Occupation Group	Socio-economic Index	Transform to NORC Scale	Population Decile Scale	Notes
Paperboard containers and boxes	10	48	2	—
Miscellaneous paper and pulp products	8	45	2	—
Printing, publishing, and allied industries	23	60	6	—
Chemicals and allied products	8	45	2	c
Synthetic fibers	4	37	1	—
Drugs and medicines	22	60	6	d
Paints, varnishes, and related products	8	46	2	—
Miscellaneous chemicals and allied products	8	45	2	—
Petroleum and coal products	22	60	6	c
Petroleum refining	26	62	6	—
Miscellaneous petroleum and coal products	3	28	1	—
Rubber products	12	51	2	—
Leather and leather products	6	43	1	c
Leather: tanned, curried, and finished	2	28	1	—
Footwear, except rubber	10	49	2	—
Leather products, except footwear	12	51	2	d
Not specified manufacturing industries	8	45	2	—
Nonmanufacturing industries (incl. not reported)	7	44	2	b, c
Construction	7	43	2	—
Railroads and railway express service	3	34	1	—
Transportation, except railroad	9	47	2	—
Telecommunications, and utilities and sanitary services	6	43	1	—
Wholesale and retail trade	12	51	2	—
Business and repair services	9	47	2	—
Personal services	5	39	1	—
Public administration	7	43	2	—
All other industries (incl. not reported)	6	41	1	—
Occupation not reported	19	57	5	—

Explanation of Notes:

a. One of 45 occupations used in deriving socioeconomic index from predictors of NORC prestige ratings.

b. One of 16 occupations poorly or partially matched to NORC titles.

c. Occupation omitted from statistical analysis of 425 detailed occupations, because it is a grouping of specific titles listed below it.

d. Occupation omitted from statistical analysis of 425 detailed occupations, because census data are based on fewer than 100 sample cases (corresponding to an estimated population of fewer than 3,000 males).

e. Occupation omitted from statistical analysis. The census data do *not* pertain to current members of the armed forces, but to currently unemployed civilians whose last occupational experience was in the armed forces. The data for this occupation do *not*, therefore, describe soldiers, sailors, and related occupations.

f. The computed value of the socioeconomic index for this occupation was —3. To avoid the inconvenience of having one index value with a negative sign, this index was arbitrarily changed to zero, which remains the lowest value in the table.