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## A Study Of The Communication Skills Of Socially Isolated Elementary School Pupils.

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*University of the Pacific*

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A STUDY OF THE COMMUNICATION SKILLS OF  
SOCIALLY ISOLATED ELEMENTARY  
SCHOOL PUPILS

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A Dissertation  
Presented to  
The Graduate Faculty of  
The University of the Pacific

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In Partial Fulfillment  
of the Requirements for the Degree

Doctor of Education

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by

Eugene S. Gibbs

May 1977

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## ABSTRACT

**PROBLEM:** Because of the potential detrimental effect of social isolation to the academic achievement and social and personal adjustment of elementary school pupils, there is a need for data describing communication skills of an isolate sample.

**PURPOSE:** The objective of this study was two fold, (a) to determine the means of the Illinois Test of Psycholinguistic Abilities subtest scores of a sample of isolate elementary school pupils, and (b) to compare those means with the means of the subtest scores of the normative population.

**PROCEDURES:** A sample of 40 socially isolate and highly fringe isolate elementary school pupils was identified through the use of the Georgia Sachs Adams' sociometric survey. The pupils were from selected third and fourth grade classrooms in five schools in three Northern California school districts. These were middle-class districts slightly above average in reading and mathematics achievement and in district-wide I.Q. Each pupil was then given the Illinois Test of Psycholinguistic Abilities to determine the communication skills of the sample. The Illinois Test of Psycholinguistic Abilities subtest means of the isolate sample were compared with those of the normative population by means of Student's *t* test. One-way analysis of variance and the Newman-Keuls *q* statistic multiple comparison procedure were used to identify differences between subtest means of the isolate sample.

**FINDINGS:** The norm group mean was greater than the isolate sample mean, at the .05 level of significance, on the Illinois Test of Psycholinguistic Abilities Auditory Reception subtest. The isolate sample means were significantly higher than the norm group means on the Visual Reception, Auditory Association, Visual Association, Manual Expression, Auditory Sequential Memory, and Visual Sequential Memory subtests. There were no significant differences between the isolate sample means and the norm group means on the Illinois Test of Psycholinguistic Abilities Verbal Expression, Grammatic Closure, and Visual Closure subtests. Within the isolate sample the mean of the Visual Sequential Memory subtest was significantly higher than the means of the Visual Association, Visual Closure, Verbal Expression, Grammatic Closure, and Auditory Reception subtests. The Manual Expression subtest mean was significantly higher than the means of the Verbal Expression, Grammatic Closure, and Auditory Reception subtests. The Auditory Sequential Memory subtest mean was significantly higher than the Grammatic Closure and Auditory Reception subtest means. The means of the Auditory Association and Visual Reception were significantly higher than the Auditory Reception subtest mean.

**CONCLUSIONS:** The findings of the study reject the null hypotheses in comparison of the means of the isolate sample with means of the norm group in seven of the ten Illinois Test of Psycholinguistic Abilities

subtests. The null hypotheses in three of the subtest comparisons were supported. In the comparisons where differences existed, the means of the isolate sample were larger than the norm group six of seven times. These findings indicate that the sample of isolate pupils demonstrated relatively high communication skills in visual reception, auditory association, visual association, manual expression, auditory sequential memory, and visual sequential memory. They demonstrate relatively low skills in auditory reception.

RECOMMENDATIONS FOR FURTHER RESEARCH: Further study is recommended as follows: (a) Research to determine if communication skills of isolate pupils change over time; (b) experimentation with communication-skill deficient pupils to ascertain its influence on isolation; (c) comparison of isolate samples with non-isolate samples chosen from the same demographic population, to provide more comparability than offered by comparison with normative populations; (d) replication of the current study in the area of Auditory Reception to provide confirmation for the implication that isolate pupils have deficiency in that area.

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E.S.G.

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## Chapter 1

### THE PROBLEM AND OBJECTIVES OF THE STUDY

#### Introduction

In a discussion of the purposes of schools, Ralph W. Tyler (1968, p. 1) states,

The goal of individual self-realization is even more necessary for the schools to stress in our mass society where economic, political, and social demands are frequently heard more distinctly than demands of the individual for education that will enable him to use the rich resources of an industrial society for his own fuller life.

This represents a widely held position on the purpose and function of the school in American society. Tyler further states, in the same work, that the school is to provide each child with opportunity to realize his potential. Kenneth Boulding (1966, p. 2) also identifies the same general position by saying,

It must never be forgotten that the ultimate thing which any society is producing is people. . . . If this principle is stamped firmly in the minds of those who guide and operate our educational system, we can afford to make a great many mistakes . . . because we will be protected against the ultimate mistake, which would be to make the educational system a means, not an end, serving purposes other than man himself.

Arthur T. Jersild (1952), Harry Stack Sullivan (1953), and W. Lloyd Warner, Havighurst, and Loeb (1944) view the school as second only to the home in its influence to shape the self-concept and self-esteem of the child. Related to the concern for optimal development of the self is the value placed on development toward democratic citizenship. Frederick A. Rogers (1975, p. 50) states the value thusly:

An educational indicator of the elementary school's influence on democratic citizenship can be described on at least two levels. At the classroom or school level such indicators include results of sociometric tests applied to classroom or school elections, or any activity requiring students to make selections from among their peers. . . .

In Democracy and Education (1916, pp. 22-23, 42) John Dewey emphasizes the social function of the school as providing a "social environment" in which individuals engage in group activities which serve the needs of each. This, Dewey believed, is required for the "emotional spirit" of each pupil and it is an "educative" function. He also identifies a major role of the school as the promoting of personal growth and fulfillment of the "powers" of childhood and youth.

Earlier in American history Benjamin Franklin said, in Idea of the English School (cited in Bailyn, 1960, p. 35), "Thusly instructed youth will come out of this school fitted for learning any business, calling, or profession." Commenting on this statement the historian, Bernard Bailyn (1960, p. 35) points out that Franklin's whole philosophy of education is summed in one sentence. He goes on to observe that while Franklin's vision was "a new thing for 18th century America" it became the goal of all public schooling in the United States during the 19th century.

E. P. Cubberley (1919, p. 495), in summarizing "Fundamental Principles and Problems" in the history of American education, emphasized the "firmly established" educational policy that schools should provide equal opportunity for all classes of pupils and for as long as each can "profitably partake of the educational advantages provided." He further states that schools have been committed to meeting the "life needs" of its pupils. He also relates this to the government as a "prime necessity" for the continuance of democratic citizenship.

A basic premise of the current study follows the position that all children in American public schools should be led toward the development of their individual potential toward full citizenship. From this point of view then, those problems which interfere with academic or social growth need to be attacked and minimized.

Some behavioral and social scientists are of the opinion that peer acceptance or rejection can cause social and emotional maladjustment in an individual and often causes a reduction or retardation of their learning (Guinouard and Rychalk, 1962). Busswell (1953) found that isolate children she studied generally achieved below grade level, while Guinouard and Rychalk (1962) found the isolate children in their sample had less self-confidence than their peers.

The poor peer relationship of many isolates and highly fringe isolates (Guinouard and Rychalk, 1962; Muma, 1965) becomes a hurdle which should be understood and overcome by the classroom teacher if he is to deal with the academic problems of his isolate pupils as successfully as possible. However, M. E. Bonney (1971) has indicated that in his extensive research no solution to the academic problems of the isolate pupil in the elementary school has yet been found.

Bronfenbrenner (1945) found that, typically, there were from zero to four isolates in classrooms of nursery age through grade six pupils, with an average of one. Scardamaglia's (1974) research on social isolation in grades three, four, and five revealed an average of 1.4 isolates per classroom.

Dean (1961) suggests that lack of communication can be one of the major causes of social isolation. McClosky and Schaar (1965, p. 22) share this point of view:

Anomic feelings appear most frequently and most strongly among those who, for whatever reason, are stranded in the backwaters of the symbolic and material mainstream, those whose lives are circumscribed by isolation. . . . Persons who do not share in the articulate . . . community. . . .

Griffin (1970) supports the view that much personal alienation within American society is due to denial, for whatever reason, of communication opportunities. A study by Griffin and Groginsky (1970) at the University of Kansas revealed a positive correlation between degree of social isolation and perceived communication denial. These researchers suggested that further studies comparing communication facility and social status were warranted.

#### The Problem

Because of the potential detrimental effect of social isolation to the academic achievement and social and personal adjustment of elementary school pupils, there is a need for data describing communication skills of an isolate sample. This is especially needed since, as Bonney (1971) indicates, no solution to the isolation condition in elementary school pupils has been found. The recent review of the literature by R. J. Scardmaglia (1974) reveals no research on isolate characteristics related to communication-skill ability, deficiency, or profiles.

The communication skills identified by the Illinois Test of Psycholinguistic Abilities show development as the child matures (Bush and Giles, 1969). When something interferes with the development process deficiencies in the skills occur, but they may be restored through therapeutic, remediation activities (Kephart, 1960; Chaney and Kephart, 1968; Ebersole, Kephart, and Ebersole, 1968; Frostig and Horne, 1964; Strauss and Lehtinan, 1947). Using activities designed for the utility of classroom teachers and organized by age and specific Illinois Test of Psycholin-



guistic Abilities processes, "the teacher can pick the child up at the point of his breakdown and carry him step by step through the remaining sequences until development is complete." If the remediation teaching is accomplished successfully, the learning presentations of the normal classroom can become meaningful and learning can become possible (Bush and Giles, 1969, p. 7).

In order for therapeutic, remediation activities to be affected with socially isolated pupils communication-skill characteristics must be identified.

#### Statement of the Problem

To what extent do the communication skills, as measured by the Illinois Test of Psycholinguistic Abilities, of isolate and highly fringe isolate children differ from those of the Illinois Test of Psycholinguistic Abilities normative population? This study sought to identify communication skills of socially isolated and highly fringe isolate elementary school pupils, as a group, using a sociometric survey and the Illinois Test of Psycholinguistic Abilities. It further sought to compare Illinois Test of Psycholinguistic Abilities subtest scores of an isolate sample with those of the normative population.

#### Purposes of the Study

The purpose of this study was twofold: (a) to determine the means and standard deviations of Illinois Test of Psycholinguistic Abilities subtest scores of a sample of isolate and highly fringe isolate elementary school pupils, as a group, and (b) to compare those means and standard deviations with the means and standard deviations of the normative population.

### Research Hypotheses

Based on the work of Guinouard and Rychalk (1962), Stevens (1971), Buswell (1953), and Muma (1965) with isolated elementary school pupils and Dean (1961), McClosky and Schaar (1965), and Griffin's (1970) research into the relationship of the lack of communication with isolation it is predicted that in comparison with Illinois Test of Psycholinguistic Abilities subtest scores, the isolate sample profile will be lower than the profile of the normative population. These comparisons are presented as hypotheses which this study determined to support or reject.

- Hypothesis 1: The Auditory Reception abilities of the isolate subjects are inferior to those of the subjects of the normative population.
- Hypothesis 2: The Visual Reception abilities of the isolate subjects are inferior to those of the subjects of the normative population.
- Hypothesis 3: The Auditory Association abilities of the isolate subjects are inferior to those of the subjects of the normative population.
- Hypothesis 4: The Visual Association abilities of the isolate subjects are inferior to those of the subjects of the normative population.
- Hypothesis 5: The Verbal Expression abilities of the isolate subjects are inferior to those of the subjects of the normative population.
- Hypothesis 6: The Manual Expression abilities of the isolate subjects are inferior to those of the subjects of the normative population.

Hypothesis 7: The Grammatical Closure abilities of the isolate subjects are inferior to those of the subjects of the normative population.

Hypothesis 8: The Auditory Sequential Memory abilities of the isolate subjects are inferior to those of the subjects of the normative population.

Hypothesis 9: The Visual Sequential Memory abilities of the isolate subjects are inferior to those of the subjects of the normative population.

Hypothesis 10: The Visual Closure abilities of the isolate subjects are inferior to those of the subjects of the normative population.

#### Procedure

A combined sample of socially isolate and highly fringe isolate pupils were identified from selected third and fourth grade classrooms in five schools in three Northern California school districts. The school districts were selected because of their similarity to the school districts of the Illinois Test of Psycholinguistic Abilities normative population in I.Q. level, racial composition of pupils, family income, and adult educational level in each family and their proximity to the researcher. A further description of the population appears in Chapter 3.

In four of the five schools classes were selected using a table of random numbers. In the fifth school all third and fourth grade classes participated in the study.

The Georgia Sachs Adams' sociometric survey was administered in each classroom with a uniform introduction. The researcher, in tabulating the

results of the survey, identified the social isolates (no nominations) and the highly fringe isolates (one nomination).

In order to investigate the specific communication skills of socially isolated elementary school pupils a reliable and valid instrument of some sophistication was required. The Illinois Test of Psycholinguistic Abilities is purported to be such an instrument. Its object is to delineate specific communication-skill abilities and disabilities in children in order that remediation might be undertaken when needed (Kirk, McCarthy, and Kirk, 1968).

According to W. J. Bush and M. T. Giles (1969, p. 29) the Illinois Test of Psycholinguistic Abilities ". . . was designed to measure more discrete psycholinguistic differences than the psychological tests of the past." The Revised Edition of the Illinois Test of Psycholinguistic Abilities evaluates functions on two levels: the representational and the automatic. The representational level refers to responses which require the integration of symbols to obtain meaning. The automatic level involves a chain of responses which the individual can make with less voluntary functioning (Kirk and McCarthy, 1961).

The third dimension of these cognitive abilities is the channel of communication. The test includes auditory-vocal and visual-motor channels of communication (Paraskevopolous and Kirk, 1969).

Tables of standard scores, with means of 36 and standard deviations of 6, were constructed during the standardization procedures of the Illinois Test of Psycholinguistic Abilities. These tables are for subjects from age two years, four months through ten years, three months.

The isolate pupils were given the Illinois Test of Psycholinguistic Abilities, by the researcher, after permission was granted by their

parents. The researcher has been trained in the administration of the Illinois Test of Psycholinguistic Abilities by Mrs. Marion Lutz, a former Orinda Union School District psychometrist and has been under the supervision of the Clinical Services program of the University of the Pacific.

Profiles of communication-skill levels developed from Illinois Test of Psycholinguistic Abilities scores were used to define the problem of isolate pupil communication-skill difficulty and, perhaps, give direction to remediation teaching.

The first ten subtests of the Illinois Test of Psycholinguistic Abilities were used in this study. The two supplementary tests were not used. These are not used to compute the Composite Psycholinguistic Age, the Mean Scaled Score, nor to obtain the Estimated Stanford-Binet Mental Age Estimate (Kirk, et al., 1968, p. 92). These score profiles of isolate pupils were compared with norm profiles to produce descriptive data about communication skills of isolates not before considered in seeking solutions to social isolation in elementary school pupils.

#### Assumptions and Limitations

This study was based on several assumptions and limitations as follow:

##### Assumptions

1. The Georgia Sachs Adams' sociometric survey is an adequate instrument to identify social isolate and highly fringe isolate children at the elementary school level.
2. The sample of isolate and highly fringe isolate pupils identified for this study is representative of the population of isolate elementary school pupils.

### Limitations

1. School grades chosen for the study are limited to grades three and four.
2. The study was geographically limited to two Northern California suburban communities and one small city surrounded by agricultural lands within one hundred miles of San Francisco.
3. The study sought to describe the isolate sample's communication skills only.
4. The isolate and fringe isolate sample was not controlled for intelligence as was the Illinois Test of Psycholinguistic Abilities normative population.

### Definition of Terms

The following definitions of terms were utilized in this study:

1. Communication skills. The skills tested by the Illinois Test of Psycholinguistic Abilities are: (a) The Receptive (decoding) Process which is the subject's ability to comprehend visual and auditory symbols. (b) The Organizing (association) Process is the ability to relate, organize, and manipulate visual and auditory symbols in a meaningful way. (c) The Expressive (encoding) Process which involves the ability to use verbal or manual symbols to express an idea. (d) Closure is the ability to fill in the missing parts in an incomplete picture or verbal expression or the ability to integrate discrete units into a whole. (e) Sequential Memory is the ability to reproduce a sequence of visual or auditory stimuli (Paraskevopoulos and Kirk, 1969).

2. Highly fringe isolate. For the purpose of this study, a child who receives only one nomination on the Georgia Sachs Adams' sociometric survey (Scardamaglia, 1974).
3. Isolate pupil. Those pupils receiving no nominations from their classmates on the Georgia Sachs Adams' sociometric survey (Gronlund, 1959).
4. Isolate sample. Those pupils receiving one or no nominations on the Georgia Sachs Adams' sociometric survey.
5. Learning-skill deficiency. The discrepancy that exists between a subject's Scaled Score (SS), for any Illinois Test of Psycholinguistic Abilities subtest and the Mean Scaled Score (MSS) of that subject's overall performance, when the subtest score is below the MSS (Kirk, et al., 1968).
6. Normative population. This refers to the pupils tested during the standardization procedures of the Illinois Test of Psycholinguistic Abilities (Paraskevopoulos and Kirk, 1969).
7. Profile. This refers to means and standard deviations of Illinois Test of Psycholinguistic Abilities subtest scaled scores of a particular group of subjects. For this study the groups were the isolate sample and the normative population (Paraskevopoulos and Kirk, 1969).
8. Psycholinguistic. Language is a system of symbols which stand for ideas, feelings, and objects. Language involves more than just the production of speech, it must include the psychological foundations for this behavior, the structure of the language, and the relationship of the two. This relationship is psycholinguistics (McCarthy, 1963).

9. Sociometric Survey. The sociometric instrument used to evaluate relationships within a group. For this study, the survey form of Georgia Sachs Adams was used (Adams, 1964).

#### Summary

Social isolation may well lead to problems in elementary school pupils. A presumed relationship between social isolation and reduction of academic success and poor self-concept seems to be supported by the literature. In addition social isolation has a detrimental effect upon the social and personal adjustment of the individual. This effect is inconsistent with the American public education value of meeting individual pupil need. That this problem is of significant dimension is supported by Bronfenbrenner (1945) and Scardamaglia (1974) who found from one to four isolate pupils in the classrooms they surveyed. The seriousness of the isolation problem is attested to by Bonney (1971) when, after exhaustive review of research, he reported that no solution to social isolation is now available.

Apparently lack of academic success and low self-esteem, which are related to social isolation, are also related to poor communication skill. The research of McClosky and Schaar (1965) and Griffin (1970) support the isolation-communication link. Therefore, in order to test the general hypothesis of social isolation being related to communication skills the current study attempted to identify communication skill profiles of a sample of socially isolated and highly fringe isolate elementary school pupils and compare them with the Illinois Test of Psycholinguistic Abilities normative population profiles.

Chapter 1 articulated a statement of the problem, purposes of the study and hypotheses to be tested. Further identified in the chapter



were the assumptions and limitations and definitions of major terms used in the study.

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## Chapter 2

### REVIEW OF THE LITERATURE RELATED TO THE STUDY

The potential effect of social isolation on the academic achievement and social and personal adjustment of elementary school pupils necessitates the examination of data describing communication skills of isolated children. This must be done before methods of overcoming the effect can be found. The current study sought to identify a sample of socially isolated pupils and to further identify communication skills as measured by the Illinois Test of Psycholinguistic Abilities. The Illinois Test of Psycholinguistic Abilities scores of the sample were compared with those of the Illinois Test of Psycholinguistic Abilities normative population.

A review of literature related to this study is presented below in five main divisions: (1) historical background of sociometry, (2) identification of isolates, (3) characteristics of the isolate child, (4) behavior of the social isolate, (5) research on the Illinois Test of Psycholinguistic Abilities.

#### Historical Background of Sociometry

In 1932 Jacob L. Moreno requested all the pupils in a Brooklyn, New York, school from kindergarten through the eighth grade to choose the two classmates they preferred to have sit near them. A few of these pupils received a large number of choices; a few received no choices. The remainder of the pupils ranged, of course, between the two extremes. Further analysis of the choices revealed an underlying social structure of which the school's personnel were only partly aware. The choosing

made apparent mutual friendships, cliques, cleavage between the sexes, and other facets of interpersonal relations. Moreno called this technique for evaluating acceptance by peers and for determining the internal social structure of a group a sociometric test (Moreno, 1934, p. 42).

The word "sociometry" is a combination of the Latin socius, meaning social, and the Latin metrum, meaning measure, or the Greek metron, meaning measure; thus, "social measurement" (F. Stuart Chapin, 1940, p. 245).

While it is acknowledged that Jacob L. Moreno launched the sociometry movement (Gronlund, 1959; Gardner Murphy cited in Moreno, 1951; Jennings, 1950), he identifies the "roots" of the movement coming from German studies in role-playing and the sociometric test between 1919 and 1923, the work of the National Committee on Prisons and Prison Labor with sociograms and group therapy in 1932, and the workshops on community psychological organization of the 57th Annual Session of the American Association on Mental Deficiency in 1933 (Jiri Nehevajsa in Moreno, 1960, p. XV). In 1934 Moreno published Who Shall Survive? This book set forth the theory and supporting research of the sociometric technique. In 1936 and 1937, respectively, the Sociometric Review and Sociometry appeared. These publications gave opportunity for scholarly discussion of the issues of theory and practice of sociometry.

Gronlund (1959, p. 2) reports that sociometric techniques have been used in prisons, industry, summer camps, and for the study of entire communities. Findings from small group research (Cartwright and Zander, 1953, p. 33; Hare, Borgatta, and Bales, 1955, p. 23) have pointed out the implications of group structure for effective functioning of groups. Studies of group leadership (Anderson and Brewer, 1946; Lippit and White, 1943) have indicated the influence of the emotional climate of groups on

the learning and behavior of individuals. Authorities in human development (Havighurst, 1950; Olson, 1949) have stressed the value of social relations in the normal development of personality. Also, mental hygienists (Lindgren, 1956; Redl and Wattenbery, 1951; Shaffer and Shoben, 1956) have emphasized the importance of being accepted by others in the attainment of good personal and social adjustment. Textbooks in educational psychology (Blair, Jones, and Simpson, 1954; Cronback, 1954; Lindgren, 1956) have pointed out the relationship between learning and adjustment of individuals and their position in the group structure.

Within the approximately twenty years following first publication of Who Shall Survive?, Sociometric Review, and Sociometry varied disciplines, noted above, displayed concerns and/or theories that could utilize a practical instrument for the study of group structure. The sociometric survey was one such instrument. However, Gronlund (1959, p. 2) pointed out that the most extensive use of the sociometric survey has been in the school setting. Both teachers and researchers, he reported, have found it to be a simple and convenient device for measuring aspects of social relations. It is practical for the classroom, he said, because of its ease of construction and administration.

#### Identification of Isolates

In his book Who Shall Survive? Moreno uses the term "isolate" to identify the subject who receives no nominations by his peers on a sociometric test (or survey). During the same year that that important book was published, he and Helen Jennings began a study at New York State Training School for Girls, Hudson, New York. The study was published in Sociometric Review in February, 1936. Moreno and Jennings (1947, p. 2) later identified this as the first study of "longitudinal sociometric

follow-up of a community." Again the term "isolate" is used to identify the subject with no nominations on a survey. A later study by Jennings entitled Leadership and Isolation (1950) based on research completed in the 1940's continued to use isolate to describe the subject of whom no choices were made.

This definition or method of identification of isolates has remained constant through the decades from its beginning in America in the 1930's to the current time (Bronfenbrenner, 1945; Festinger, 1949; Northway, 1952; Busswell, 1953; Lindzey and Bergatta, 1954, Chap. 11; Guinouard and Rychalk, 1962; Bonney, 1971; Stevens, 1972). Such contemporary reference works as A Dictionary of the Social Sciences (Gould and Kolb, 1964, p. 356), International Encyclopedia of the Social Sciences (Sills, 1968, p. 54), A Modern Dictionary of Sociology (Theodorson and Theodorson, 1969, p. 216), Dictionary of Education, 3rd Edition (Good, 1973, p. 317) use the no-nomination definition of isolation consistently.

### Characteristics of the Isolate Child

The literature relating to the characteristics of the isolate child is discussed below under six headings. These sections deal with the following: (1) intelligence and the isolate child, (2) emotional stability and the isolate child, (3) physical appearance and the isolate child, (4) anti-social behavior and the isolate child, (5) school and recreational interests and the isolate child, and (6) sex roles and the isolate child.

#### Intelligence and the Isolate Child

Intelligence and sociometric status have been found to have positive correlation. Richards (1967, p. 262) found a positive correlation

between intelligence and sociometric status of from .21 to .63. He concluded:

The relationship of ability, achievement and personality stability to sociometric status are complex, but the study suggests that the most highly accepted pupils are generally those with the most stable personalities and those most likely to be succeeding in their school work.

M. E. Bonney (1944, pp. 26-39) found a correlation coefficient of .34 for the third grade students he studied, a correlation coefficient of .31 for the fourth graders and a correlation coefficient of .45 for the fifth graders. Bonney concluded:

Although these correlations leave no doubt about there being a positive relationship between popularity and degree of brightness in the groups studied, they nevertheless certainly are not high enough to permit accurate predictions from one measurement to the other. Obviously, there must be many exceptions to the generally positive trend shown by the coefficients. . . . The reason why a few children can achieve a high degree of social success in spite of serious handicaps in intelligence and home background are undoubtedly to be found in the structure of their personalities. These children have attained the right proportions of aggressiveness, daring, sympathetic responses, and friendliness--traits which have been found in this follow-up study to be very important in winning admiration and in establishing interpersonal relationships.

Grossman and Wrighter (1948), Laughlin (1954), and Jordan (1960) found similar results. Busswell (1953, p. 61), in a study comparing intelligence, achievement, and socio-economic status of accepted and non-accepted children concluded "in general those who are succeeding in their school work will also be succeeding in their school relationships with their peers."

Opposite results were obtained by Zander and Van Egmond (1957, p. 39). They concluded in their study that "highly intelligent persons on the whole were very seldom different as social beings from the less intelligent ones when their degree of social power was held constant." That is, intelligence was not a determining factor in social interaction.

However, Fox, Lippitt, and Schmuck (1964) discuss a definite relationship between "liking status" in the classroom peer group and utilization of academic abilities.

#### Emotional Stability and the Isolate Child

Hawkes and Koff (1968) administered a battery of emotional adjustment indicators and a two-question sociometric questionnaire to 45 pupils in two self-contained elementary school rooms. The subjects were classified "adjusted" or "maladjusted" according to the emotional adjustment battery scores. Adjusted groups were found to have (a) significant higher plus status, and (b) significant lower minus status than the maladjusted groups. No significant differences were found between adjusted and maladjusted groups on indices of intrapersonal maladjustment. Findings were discussed in terms of a taxonomic concept of emotional handicaps and the ways information obtained from sociometric questionnaires might be applied to life in classrooms.

Gronlund (1959) and Schmuck (1964) in separate reviews of the literature similarly concluded that there is a positive correlation between assessed mental health and sociometric status. In like manner, Vacc (1968) found that the number of sociometric rejectees was significantly greater among those students found to be emotionally disturbed. Bruce T. Saunders reporting in the July 1970 issue of Psychology in the Schools (p. 270) commented on Vacc's findings by stating:

Vacc's study is consistent with previous findings, namely, that mental health and emotional stability are significantly and positively related to peer status within the classroom; children who are emotionally disturbed are also socially rejected.

In a study of the relationship between social status and anxiety within a population of institutionalized delinquent boys Trent (1957)

reported that the more anxious boys tended to be rejected by their peers, while less anxious boys tended to be accepted by their peers. Similar findings demonstrating the relationship between emotional stability and sociometric status are numerous. Bower, Teshvonia, and Larson (1958), Fitzsimmons (1958), Gronlund (1959) have all found sociometric test choices to be related to ratings of mental health. Sociometric choice has also been related to the California Test of Personality (Bedoian, 1953), to the High School Personality Questionnaire of Cattell (Guinouard and Ryschlak, 1962), to the Thematic Apperception Test (Mussen and Porter, 1959) and to the Rorschach (Northway and Widgor, 1947; Tindall, 1955).

#### Physical Appearance and the Isolate Child

Appearance may also play a part in the degree of rejection of the isolate child. While no casual effect was implied, Gronlund and Anderson (1957) found that rejectees were considered less good looking, less tidy and less likable by their classmates. However, this was not found true for those students neglected but not rejected by their peers. They concluded that pupils with low social acceptability cannot be placed in a single category. The socially neglected pupils appear to be ignored or over-looked by their classmates while the socially rejected pupils are actively disliked.

#### Anti-Social Behavior and the Isolate Child

Some research evidence indicates that isolate children tend to be more anti-social than their peers. Northway (1944) suggested that some isolates invite rejection by directing their energies in such a manner as to interfere with or to frustrate the activities of the group. McClelland and Ratliff (1947) also confirm the anti-social nature of the



isolate. In their study students identified as isolates were given the California Personality Test. It was found that those students who were not chosen on the acceptance test were among the lowest scoring on the personality scale. One of the traits on which the isolates most frequently scored high was Anti-Social Tendencies.

Sociometric rejectees are less cheerful, friendly and enthusiastic according to the findings of Kuhn and Lee (1943). Northway and Widgor (1947) found that they participated less in class activities, strived less for group approval and were less sensitive to the feelings of others.

#### School and Recreational Interest and the Isolate Child

As a group children who score low in sociometric testing differ from their peers in interests. Barclay (1966a) found that high sociometric status boys were less interested in book reports, television cartoons, and cowboy music and more interested in hobbies, dance and popular music than their low sociometric status peers. They were also less interested in history and astronomy but overwhelmingly more interested in sports. Henderson (1958) found, similarly, that high status boys were significantly more athletic than low status boys.

Girls of high sociometric status were less interested in class movies and class trips, western television programs, cowboy and religious music than their low status peers. They were more interested in dance and popular music. Barclay concluded that interest patterns were distributed on a broad extroversion-introversion continuum. Activities that call for outgoing explorations in the environment are favored by those who possess the personal confidence to engage in them and have a reasonable expectation of success.

The observations of extroversion by Barclay are further confirmed by the research of Ahlbrand and Hudgins (1970). In their study on verbal participation and peer status, they found that high participators, regardless of grade level or sex, similarly receive more nominations as top scholars, leaders and popular students by their peers than low participators. However, verbal participation alone may not be an indication of high sociometric status. The work of Gronlund and Anderson (1957) indicates that both highly accepted and highly rejected received significantly more nominations by their peers as "talkative." They concluded that although talkative girls gain recognition, they do not necessarily gain social acceptance. They felt that it was probably the nature of their conversation, as well as other personality characteristics, rather than the talking itself, that determines whether they will be accepted or rejected by their peers.

#### Sex Roles and the Isolate Child ✓

There is evidence to indicate that isolate children reverse the traditional sex roles relative to the need for approval. { Tulkin, Muller and Conn (1969) found that the least popular boys in their study had a higher need for approval than the popular boys. } They discovered that the boys they studied admired the need for approval in girls but considered it contrary to the male model. Boys with a high need for approval tended to be rejected by their peers. Conversely, girls who showed less need for approval were not as popular as girls who had a high need for approval. Apparently, a high need for approval was perceived as a feminine characteristic desirable in girls but unacceptable in boys.

### Summary

In the section, Characteristics of the Isolate Child, several correlational studies were cited demonstrating a significant relationship between intelligence and sociometric status. Also relationships were found to exist between emotional stability and sociometric status, anxiety and sociometric status, physical appearance and sociometric status, anti-social behavior and sociometric status, school and recreational interest and sociometric status, introversion and sociometric status and reverse sex roles in regard to need for approval and sociometric status. Since all of these studies were correlational a causal relationship cannot be directly implied. However, it is clear that isolate children differ from their classmates in many ways.

### The Behavior of the Social Isolate

The following section describes the research available on the behavior of the social isolate and is presented in three parts. These are the following: (1) general academic performance and the isolate child, (2) self-esteem and the isolate child and (3) the isolate child's attitude toward school.

### General Academic Performance and the Isolate Child

Socially isolated children tend to behave in a way that puts them at a disadvantage in the achievement centered school. J. R. Muma (1965) found that low sociometric status children are significantly poorer in their school work than their classroom peers. His study of junior and senior high school students found a statistically significant relationship between academic performance and extremes in peer choice. Muma also found that students who were neglected by their peers, not accepted or

rejected, were not unsuccessful academically. This relationship between academic performance and sociometric status was also investigated and found to exist by Borg (1965). He found that social status and academic ability were highly correlated in heterogeneously grouped classes. However, he did note that this relationship did not exist in the homogeneously organized classrooms he studied.

Busswell (1953, p. 38) studied the relationship between the social structure of kindergarten and fifth-grade rooms and academic success. The purpose of her study was "to determine whether or not those children who are accepted by their peers differ in certain achievements from those who are rejected." She used sociometric measures, two questionnaires, an intelligence test and a readiness test. She found that students doing well in school work also do well socially with their peers. She tentatively suggested that academic achievement precedes rather than follows social acceptability. Similarly, E. H. Henderson (1958) found a statistically significant relationship between social status and academic achievement. He found this relationship to exist at the .01 level of significance. Laughlin (1954) and Northway (1944) also found a relationship to exist between academic performance and sociometric status in their separate investigations.

Commenting on the relationship of social isolation and achievement Amidon and Hoffman (1963, p. 76) said:

Often the isolate is a child who is academically below average in the class. His low achievement level may be a contributing factor in his rejection by the class or low achievement may be a partial result of rejection.

In a study by Porterfield and Schlichting (1961, p. 293), a relationship between peer prestige and status in reading achievement was found to be significant at the .05 level. The authors commented:

Consequently, on the basis of these data, the tentative conclusion that the relationship of peer prestige status and reading achievement status is significant appears justified. Of the 20 isolates discovered in this study, 13 were retarded in reading, five were accelerated, and only two were in the normal range. Obviously, the ability to excel in reading is not as important as other possible factors in being socially acceptable or in gaining leadership status in the area of sports in the lower socio-economic communities.

D. O. Stevens (1971, p. 53) also found a significant relationship between reading achievement and social status. He suggests a causal relationship between reading achievement and peer rejection, concluding:

Self-esteem and the esteem of others are in jeopardy when the child suffers from failure. Children identified as remedial readers will not be as socially well-accepted as their classroom peers. . . . The data do support the conclusion that the remedial readers in this study are not socially well-accepted in their classrooms. Furthermore, these children apparently know "their place" and the place of their other classmates who are both remedial and nonremedial.

The generalizability of such a correlation to all groups in our society must not be made. Lobov and Robins (1969) found just the converse of the studies mentioned previously. In their study conducted in Harlem, New York, high status ghetto children did not read as well as their classmates. Lobov and Robins feel this phenomenon is the result of ghetto gang pressure not to do well in school-related activities.

#### Self-Esteem and the Isolate Child *Cognition*

The socially isolated child tends to have a low sense of personal worth. As above, D. O. Stevens (1971) feels that the loss of self-esteem suffered by low achievers parallels his loss of social status. Guardo (1969, p. 322) found a positive linear relationship between sociometric status and positive self-concept. In his study, Guardo found a strong positive relationship between negative sociometric status and poor self-concept. He concluded his report thusly: "The reported correlations

supported the general notion that sociometric status and self-concept are positively and linearly related." Coopersmith (1959, p. 91), too, found a similar correlation. In his study using 102 fifth and sixth graders, a correlation of .37 was found between self-esteem and sociometric status. In another study by Horowitz (1964) a significant correlation between sociometric status and self-concept was found using a group of fourth graders. However, no significant correlation was found for the sixth graders in the study.

Waisman (1962) found that the low status young adolescents he studied were quite aware of their rejection and in turn modified their own attitudes toward themselves to reflect the opinions others had of them. Porterfield and Schlichting (1961) also felt that low peer prestige status children tend to possess a low sense of personal worth. This contention is further supported by the research of McClelland and Ratliff (1947). They found that students identified as social isolates frequently scored high on the California Personality Test in the subtest area of Anti-Social Tendencies.

#### The Isolate Child's Attitude Toward School

Guinouard and Ryschlak (1962, p. 442) commented: "Students who are not accepted and are rejected tend to dislike school and tend to be achieving below grade level." In a study by Barclay (1966b, p. 1072), 900 sociometrically tested students were followed for four years. At the end of that period, it was discovered that 65 percent of the male dropouts had been earlier identified as being in the cell of maximum social rejection. In the case of the female students, 54 percent were from that cell. If one utilizes school dropout rate as an indicator of general dislike of school, low status students, in Barclay's study, indicate a dislike for school.

### Summary

In the section, The Behavior of the Social Isolate, several studies were reviewed in regard to the low academic achievement of low socio-metric status children. Low reading achievement and low social status are related, except, perhaps, in ghetto schools. The isolate student generally feels the loss of self-esteem. Often low status children will change their own attitudes toward themselves to reflect the opinions of others. Further, low status children tend to dislike school and have a dropout rate higher than their peers.

### The Illinois Test of Psycholinguistic Abilities

The Illinois Test of Psycholinguistic Abilities developed by Samuel A. Kirk and James J. McCarthy was an attempt at diagnosing the psycholinguistic deficits in children (1961). The theoretical basis for the test is the clinical model of communication developed by Charles Osgood. Following several years of experimentation, the authors, Kirk and McCarthy, released an Experimental Edition of the test during the summer of 1961. They wanted to determine the general usefulness and to evaluate the validity of the instrument. This Experimental Edition had standardized normative data for children between the ages of two years, six months and nine years, zero months.

The revision of the Experimental Edition was begun in 1965 in an attempt to add depth through including several new tests and to improve the original subtests. In addition, the age range of normative data was extended to include the ages two years, four months through ten years, three months. This Revised Edition was published in the fall of 1968 (Paraskevopoulos and Kirk, 1969).

The children used in standardizing the Revised Edition were selected from five communities: Bloomington, Decatur, Danville, and Urbana, Illinois, and Madison, Wisconsin. Seventeen middle-range schools were selected within the five communities. Only four percent of the children used were Negro, and it was felt that this factor was related to the choice of middle-range schools within the communities in which areas relatively few Negro families resided.

Eight age groups were represented in the standardization study, each spanning a six month age range. The youngest group began with age two years, seven months and the oldest group extended to age ten years, one month. Within each age level, girls and boys were equally represented (Paraskevopoulos and Kirk, 1969).

The sample population upon which the Revised Edition was standardized included nine hundred and sixty-two children from two years, seven months through ten years, one month. The subjects were limited to those students with the following characteristics:

1. average intelligence (84-116 Intelligence Quotient on the Stanford Binet Intelligence Scale),
2. average achievement in school,
3. no outstanding difficulty in personal-social adjustment,
4. no sensory motor defects,
5. families which spoke English in the home (Paraskevopoulos and Kirk, 1969, chap. 4).

#### Representational and Automatic Levels

The Revised Edition of the test evaluates functioning on two levels: the representational and the automatic. The representational level refers to responses which require the integration of symbols to obtain meaning.



The automatic level involves a chain of responses which the individual can make with less voluntary functioning (Kirk, McCarthy, and Kirk, 1968).

### Psycholinguistic Process

The second dimension of this instrument is the actual psycholinguistic process. Three phases are considered: (1) the receptive process which taps the ability to receive information; (2) the expressive process which includes those skills necessary to express ideas or respond to stimuli; and (3) the organizing process which is the central mediating process elicited by the receptive process and preceding the expressive process (Kirk, et al., 1968).

### Communication Channel

The third dimension of these cognitive abilities is the channel of communication. The Illinois Test of Psycholinguistic Abilities includes only auditory-vocal and the visual-motor channels of communication. These channels were specifically selected, according to the authors, because they appeared to be most "relevant for the developmental level of subjects in the test's age range" (Paraskevopoulos and Kirk, 1969).

### Utilization for Diagnosis

The terms used to describe an educational handicap appear to encompass a large range of learning problems, some general and some specific. Educational research literature usually describes the children with emphasis on subject matter difficulties: children who have reading problems, language problems, and/or general learning problems.

The Illinois Test of Psycholinguistic Abilities has been utilized to describe children with: (1) speech disorders; (2) learning disabilities;

(3) reading disabilities; (4) brain-injured children; and (5) learning differences by socio-economic class.

While much of the reported literature refers to research in which the Experimental Edition of the test is used, the research completed since 1970 utilizes the Revised Edition almost exclusively. Ruth Waugh (1973, p. 236) administered both the Experimental and the Revised Editions to elementary school pupils and found correlations which were of the same general magnitude as test-retest correlations of each subtest of each edition. She concluded that the two editions can be used interchangeably, with the possible exception of, perhaps, the Visual Motor Association test which had a low correlation ( $r = .25$ ).

Raleigh J. Huizinga (1973) administered the Illinois Test of Psycholinguistic Abilities to 100 six-year-old children along with the Stanford-Binet Intelligence Test and the Wechsler Intelligence Scale for Children. The results indicated high comparability among I.Q. and Psycholinguistic Quotient (PLQ) scores.

Some factor analytic studies (Leventhal and Stedman, 1970; Smith and Marx, 1971) cast doubt on the ability of the Illinois Test of Psycholinguistic Abilities to assess discrete and basic cognitive skills. These studies indicate that the test is directed at one to three factors rather than the factors described by the ten subtests and the two supplementary tests. However, Newcomer, Hare, Hammill and McGelligan (1974) in another factor analytic study supported construct validity when they accounted for 60 percent of the total variance by the ten subtests. Doughtie, Wakefield, Sampson and Alston (1974) used a factor analytic technique that was unaffected by the idiosyncracies of rotation (Wakefield and Doughtie, 1973) and found that the relative placement of the six representational subtests in factor space was unrelated to their positions

in the model for three-four year old children. The placement showed significant correspondences with the model for each of the six older groups, ages 5-10.

In a 1974 study (O'Grady) of the Illinois Test of Psycholinguistic Abilities scores of children by socioeconomic status, I.Q., and educational diagnosis (normal, emotionally disturbed, or learning disabilities) children's mean scores differed significantly from the mean scores of the normal subjects. The scores of the emotionally disturbed and the learning disabilities groups did not differ significantly from each other.

Waddell and Cahoon (1970) studied the Illinois Test of Psycholinguistic Abilities scores of culturally deprived rural southern children. They suggested caution in using the test with the type child they studied because of evidence of content bias against such subjects.

#### Speech Disorders

Several studies have been made on the relationships of subtests of the Illinois Test of Psycholinguistic Abilities to articulation disorders of elementary children. Ferrier's (1963) investigation is representative of such research.

Ferrier (1963, p. 74) demonstrated that speech difficulties occurred at the automatic sequential level and not at the representational level. The children with articulatory speech defects show a deficiency in the integrational or specifically automatic/sequential levels (on the Revised Edition this would be on the Automatic level and the memory and closure subtests). With this particular group of children the Vocal Encoding (Verbal Expression) subtest was most difficult. Generally, it appears

that the non-symbolic level may be more closely related to articulatory speech defects than is the symbolic or representational level.

### Learning Disabilities

The Schaumburg School District No. 54 in Roselle, Illinois, screened and identified first grade eligibility for placement in special classes; the following were considered: (1) teacher referrals, (2) the individual administration of the Behavior Screening Scale, (3) the Metropolitan Readiness Test, and staffings.

At this point individual tests were given to specifically identify the learning problems of the children. The Illinois Test of Psycholinguistic Abilities was included in the battery and was administered by the speech therapist.

Below average scores on the Illinois Test showed difficulties in a variety of areas. The children did not have corresponding language and chronological ages. With this particular group, the Vocal and Motor Encoding (Verbal Expression and Manual Expression) subtests were low, and the Vocal Encoding findings corresponded to those of the previously reported "speech defective" children.

In addition, the areas involving sequencing were low. This indicated that these children had a genuine difficulty with memory. The most difficult area appeared to be in automatic sequential skills: skills which are essential for one to gain the abilities to count, learn the alphabet, read, and spell (Arena, 1969).

The research evidence found by Haring and Ridgway (1967) shows that language disorders and overall language deficits are related to learning disabilities. This area of learning disabilities becomes most apparent when the child is confronted with experiences requiring the development

of reading skills. Hart (1967) has pointed out that children with reading difficulties, not primarily associated with emotional or environmental origin, tend to have very uneven language profiles.

Milly Cowles and her associates (1970, pp. 9-15) found significant differences in the Illinois Test of Psycholinguistic Abilities scores of the Visual Reception, Auditory Association, Visual Association, Verbal Expression, Manual Expression, and Visual Closure tests of subjects identified as "kindergarten-experienced" and "non-kindergarten-experienced." The "non-kindergarten-experienced" were also identified as Low Socio-economic Status.

Minskoff, Wiseman, and Minskoff (1974) have used the Illinois Test of Psycholinguistic Abilities language model as the basis for a language instruction program. This program provides remedial activities in each of the twelve subtest areas.

Loren Barritt and his fellow researchers (1965) analyzed the profile similarities of groups of "disadvantaged" and "advantaged" kindergarten and first grade subjects using Illinois Test of Psycholinguistic Abilities scores. They found high intercorrelations for all the subtests.

Research at the American Institute for Research in the Behavioral Sciences (1969) in diagnostically based curriculum observed that preschool subjects who experienced a curriculum based on specifically diagnosed deficits in language development, among other traits, and which utilized the Illinois Test of Psycholinguistic Abilities as one of the diagnosis instruments, scored higher on I.Q. tests than did similar subjects in regular kindergarten classrooms and those who did not attend any preschool program.

### Reading Disabilities

The Illinois Test of Psycholinguistic Abilities specifically attempts to isolate the (1) visual, (2) auditory, (3) vocal, (4) fine, and (5) gross motor sensory functions relating to learning in general and specifically to reading skills. An analysis of the process of reading makes one aware of the utilization of different sense channels for different methods of reading instruction: (a) the "sight-word" method of teaching reading relies on an adequate development of the visual senses; (b) a strong auditory method would be one which relied on the phoneme/grapheme relationship; and (c) the tactile approach in which the "touching" or the "feeling of letters" is utilized to develop reading skills. It, therefore, becomes important to be aware of sensory deficits prior to attempting to remediate reading problems. In order to be successful in teaching reading the strong sense channels must be appropriately utilized.

Bateman (1968) cites several studies of poor readers in which the Illinois Test of Psycholinguistic Abilities profile portrayed a weakness in a particular sense channel. The child's educational history revealed that it had been this weak sense channel which had been utilized to teach reading in first grade. Even though the child may have a strong auditory memory, the visual approach to teaching of reading and his particular deficit in visual-memory combined to make the child unable to learn. The implication here is that some of the potential reading disabilities could have been detected prior to the introduction of reading. Thus, appropriate planning could have intervened and prevented possible reading problems.

Certain of the Illinois Test of Psycholinguistic Abilities subtests have specific implications for remediation of reading disorders. Chil-

dren with reading disorders have been given the test to facilitate program planning for them. Furey and Outridge (1967) utilized the areas of observed weakness on the Illinois Test of Psycholinguistic Abilities with six second grade children to build a language development program. During the three month program a mean gain of seventeen months growth of total mean language age was noted.

Children have been identified as prospective problem readers in kindergarten and when retested at the end of the first grade, were identified as poor readers. Those children, however, whose weaknesses were in a modality not necessary for success in a particular type of reading approach, had succeeded in learning to read at first grade level (Bateman, 1968).

The children with educational handicaps may be similar to other children labeled "poor readers" or "dyslexics." Such children frequently display difficulty in the particular subtests involving memory functions as tested in the auditory-vocal sequential subtests and the visual-motor sequential subtests (Auditory Sequential Memory and Visual Sequential Memory) (Bateman, 1968, p. 79).

Krippner (1963) found that superior visual memory (such as is tested in the Visual Sequential Memory subtest) could be isolated as one of the several factors cited for reading success in children who were linguistically precocious.

Corrine Kass (1966) found a relationship between poor performance on the automatic sequential subtests (Grammatic Closure and memory subtests) and a difficulty in learning to read. The subtests which were included at the automatic/sequential level included tests of perceptual speed, closure, and visual memory. The corresponding subtests in the Revised Edition would be (a) Grammatic Closure, (b) Auditory Sequential,

and (c) Visual Sequential Memory. Possibly the new subtests requiring Visual Closure, Auditory Closure and Sound Blending could be included.

Kass noted that there was considerable difficulty in the area of Sound Blending on the Monroe-Memory for Designs for students with reading problems. In the Revised Illinois Test of Psycholinguistic Abilities the inclusion of the Sound Blending activity resembles that on the Monroe.

The one superior (significantly larger mean) area for children with reading difficulties appears in the Visual Decoding (Visual Reception) subtest. This area requires the individual to utilize pictures in order to ascertain the required response. Children with difficulties in reading are suspected of having learned to obtain the contextual clues from pictures and consequently developed the ability to "read" pictures (Helmuth, 1968).

Bateman (1968) summarizes the importance of the specific subtest deficits as they relate to reading by stating that in the first and second grades children are often taught reading through a whole word approach. This method generally relies on visual-memory skill. By third grade it becomes impossible to present every word in a sight method, and the child must rely on phonetic clues or auditory memory skills to be effective in reading. The child who experiences difficulty with visual memory, but has a strong auditory memory often begins to read well at this stage and is often classified by the teacher as a "late bloomer."

The child who must rely on visual clues because of an auditory deficiency begins to experience difficulty because he is unable to learn the large number of new vocabulary words without formal presentation. Bateman indicates that auditory memory is the most important psycholinguistic function in terms of its role in reading. If this is so, it



would indicate that visual memory becomes less important in the final analysis in reading.

Robert Bruininks (1970) reported in the Elementary School Journal on a study that suggests the presence of general deficits in the auditory receptive and vocal expressive abilities of poor reading disadvantaged children who learned to read using the initial teaching alphabet series. Using the Experimental Version of the Illinois Test of Psycholinguistic Abilities, Evelyn B. Slobodzian (1968) described its use for kindergarten and first grade teachers as a diagnostic tool and guide for remediation and as an indicator of reading readiness.

In "A Study of the Effects of a Group Language Development Program Upon the Psycholinguistic Abilities and Later Beginnings Reading Success of Kindergarten Children," J. L. Milligan (1965) used the Illinois Test of Psycholinguistic Abilities as a posttest for subjects in control and experimental groups comparing conventional approaches to the teaching of language skills with an approach emphasizing oral expression, divergent thinking, use of spoken analogy, automatic use of inflectional endings, auditory memory, and visual memory. The experimental group did perform better than the control group, especially in the auditory-vocal association and the vocal encoding subtests.

#### Brain Injured Children

Blumbert (1968) conducted a research study at Temple University to determine what correlations might exist between brain injured and nonbrain-injured children with reading disabilities. He found similarity in functioning in both groups in the area of associative-learning and memory span abilities. The brain injured population scored on, or above, their chronological age levels on the following subtests: (a) Visual

Decoding (Visual Reception), (b) Motor Encoding (Manual Expression), (c) Auditory-Vocal Association (Auditory Association), (d) Visual-Motor Sequencing (Visual Sequential Memory), and (e) Auditory Decoding (Auditory Reception). Blumberg considered these areas to be strengths in the brain-injured population.

The brain-injured placed below the norms or their chronological ages in the areas measuring Vocal Encoding (Verbal Expression), Visual-Motor Association (Visual Association), Auditory-Vocal Automatic (Grammatic Closure) and Auditory-Vocal Sequencing (Auditory Sequential Memory). Blumberg suggests that both the brain-injured and the non-brain-injured with associative learning disabilities have comparable areas of weaknesses; hence, similar remedial techniques may be appropriate for both groups.

J. M. Caccamo and Allen C. Yater (1972) used the Illinois Test of Psycholinguistic Abilities to compare Negro children with Down's syndrome with Caucasian children with Down's syndrome. The two groups did not differ significantly in patterns of psycholinguistic abilities as indicated by the test.

#### Other Related Studies

A study by the Office of Research and Testing, University City School District, Missouri, (1970) used the Illinois Test of Psycholinguistic Abilities to predict readiness for school success. The test's Language Quotient proved to be a "reasonably" good predictor of performance on the Metropolitan Readiness Tests, and predictability was increased by using only three of the subtests, auditory-vocal association, visual-motor association, and auditory-vocal sequencing, and the test of visual-motor integration instead of the whole test. Performance on the Stanford

Achievement Test could be predicted best by using one subtest, auditory-vocal association, and the test of visual-motor integration.

David A. Sachs at New Mexico State University (1971) used parts of the Illinois Test of Psycholinguistic Abilities along with parts of the Frostig Developmental Test to determine if deaf children were making gains in their visual perception skills using a specially prepared curriculum set in six one-year phases.

B. L. Stephenson (1970) sought to compare the patterns of psycholinguistic abilities of lower and middle class Negro and white children in Louisiana. All the children were given the Illinois Test of Psycholinguistic Abilities. The resultant scores were analyzed and the following were indicated: race and social class were significant factors in the pattern of psycholinguistic abilities; the interaction of race and social class was significant in the general test and by subtest; the interaction of race, social class, and the subtests was not significant. These findings led Mr. Stephenson to advise teachers to examine their methods and materials to determine if they are appropriate to the patterns of psycholinguistic abilities of the children they teach.

Studies by Burns (1976a, 1976b) suggest care in the use of the Illinois Test of Psycholinguistic Abilities with gifted children since score dispersion might be greater than with average children. Newcomer and Hammill (1975) found a relationship between Illinois Test of Psycholinguistic Abilities scores and reading achievement that was due to intelligence. Here again caution is advised in interpretation of Illinois Test of Psycholinguistic Abilities scores. Chronkrite and Penner (1975) also suggest care in the interpretation of Illinois Test of Psycholinguistic Abilities scores since they found chronological

age to account for over 90 percent of the variance in the scores they obtained.

### Summary

In the section, Research on the Illinois Test of Psycholinguistic Abilities, the test has been described. The characteristics of the norm population were briefly examined also. Representational and Automatic levels, as tested by the Illinois Test of Psycholinguistic Abilities along with the Psycholinguistic Process and Communication Channel were described. Reports of utilization of the Illinois Test of Psycholinguistic Abilities with subjects with Speech Disorders, Learning Disabilities, Reading Disabilities, and Brain-Injury were cited. In addition, the interchangeableness of the Experimental and Revised Editions was cited. Also in this section selected literature of the debate concerning the factor analytic qualities of the Illinois Test of Psycholinguistic Abilities are reported. Some limitations with certain groups of subjects were also reported.

### Summary

This review of literature related to the present study was presented in five main parts: historical background of sociometry, identification of isolates, characteristics of the isolate child, behavior of the social isolate, and research on the Illinois Test of Psycholinguistic Abilities. Even though a direct cause-effect relationship cannot be implied, the correlational studies do show that isolate children differ from their classmates in intelligence, emotional stability, anxiety, physical appearance, anti-social behavior, school and recreational interest, introversion, and reverse sex roles in regard to need for approval. Low academic

achievement, including low reading achievement, and loss of self-esteem were also shown to be related to social isolation. Also, it was shown that low status children tend to have a higher dropout rate than do their peers.

The literature supporting the use of the Illinois Test of Psycholinguistic Abilities was in a wide range of settings and with a wide variety of children. The test also gives evidence of construct validity (Newcomer, Hare, Hammill and McGelligan, 1974; Doughtie, Wakefield, Sampson and Alston, 1974).

The intent of the current study was to use the Illinois Test of Psycholinguistic Abilities to determine if social isolate children demonstrate a pattern of communication-skill deficiency when compared to the norm population. The literature review, in the opinion of the researcher, supported both the contention that social isolate children possess patterns of characteristics and behaviors that differ from their peers and that the Illinois Test of Psycholinguistic Abilities provides an instrument for identifying such patterns in the area of communication-skills.

While various studies have been made of socially isolated elementary school pupils, the literature does not reveal the use of the Illinois Test of Psycholinguistic Abilities. The current study sought to combine the need for communication skill data about isolate pupils with the usefulness of the Illinois Test of Psycholinguistic Abilities in the attempt to better understand social isolation of elementary school pupils.

## Chapter 3

### THE DESIGN AND PROCEDURE OF THE STUDY

#### Introduction

Because of the potential effect of social isolation on the academic achievement and social and personal adjustment of elementary school pupils, there is a need for data describing communication skills of a sample of social isolate pupils as one of the possible reasons or correlates of social isolation. The current study sought to identify such a sample and to further identify communication skills as measured by the Illinois Test of Psycholinguistic Abilities and to compare the scores of the sample with those of the normative population.

The design and procedure of the study is presented below in a detailed format under sections dealing with the following: (a) setting of the study, (b) identification of the population, (c) instrumentation, (d) administration of the sociometric survey, (e) administration of the Illinois Test of Psycholinguistic Abilities, and (f) hypotheses and statistical procedure. A summary concludes the chapter.

#### Setting of the Study

The setting of the study was two suburban communities and one exurban community all within one hundred miles of San Francisco, California. Specifically, the school districts of the communities were the Rincon Valley Elementary School District, Santa Rosa; the Lafayette Elementary School District; and the Orinda Elementary School District. Generally, the study was conducted in middle-class communities.

Data from the United States Bureau of the Census and from school district records were gathered in order to identify the school populations in a specific manner. This included (a) the median school years completed by adults, (b) percent of males ages 16-21 not high school graduates and not enrolled in school, (c) median family income by school district, (d) percent of unemployed persons 16 years old and older, (e) percent of persons employed as professionals, (f) percent of persons with income below the 1970 Federal Poverty level, (g) average sixth grade reading achievement scores, (h) average sixth grade mathematics achievement scores, (i) average sixth grade I.Q., (j) racial composition of school populations. A brief description of each school follows.

School A is located in a suburban community outside a large city. The 1970 median income of the residents in this school was \$20,489. Approximately 84 percent of the fathers of the children in this school are professional men. The 1970 median education level of the adults in this school district was 15.5 years. The percent of males ages sixteen through twenty-one who were not high school graduates or currently attending high school was 1.9. Of the males over the age of sixteen 2.5 percent were unemployed. The percent of adults with incomes below the 1970 federal poverty level was 2.4.

School A has approximately 400 students. Ninety-nine percent of these students were white. The average sixth grade reading achievement score, as measured by the Stanford Achievement Test, was 8.1 (grade equivalent). The average sixth grade mathematics achievement score was 7.9. The average sixth grade I.Q. for this school, as measured by the Lorge-Thorndike Intelligence Test, was 111.

School B is located in a suburban community outside a large city. The 1970 median income of the residents in this school's district was

Table 1

Characteristics of the School Communities of  
the Study Relative to Education, Income, Unemployment,  
Occupation, and Poverty Level As Revealed  
in the 1970 U.S. Census

Characteristics	Schools				
	A	B	C	D	E
Median School Years Completed by Adults	15.5	13.5	15.5	12.7	12.7
Percent of Males Ages 16-21 Not High School Graduates and Not in School	1.9	3.9	1.9	6.0	6.0
Percent Unemployed (16 years or older)	2.5	1.5	2.5	4.4	4.4
Median Family Income (dollars)	20,489	18,284	20,489	11,053	11,053
Occupation: Percent of Professionals Falling into the Census Tract Column, "professionals, . . . managers and administrators."	84	62	81	52	52
Percent of Persons with Income Below the 1970 Federal Poverty Level	2.4	2.3	2.4	6.3	6.3
Average Sixth Grade Reading Achievement Grade Equivalent Score (Stanford Achievement Test)	8.1	7.2	7.8	5.5	6.3
Average Sixth Grade Mathematics Achievement Grade Equivalent Score (Stanford Achievement Test)	7.9	6.1	6.8	5.1	6.1
Average Sixth Grade I.Q. (Lorge-Thorndike)	111	105	112	103	102
Racial Make Up (percent)					
White	99	98	97	95	97
Black	0	0	1	1	1
Oriental	1	1	2	1	1
Mexican/American	0	1	0	1	1
Other	0	0	0	2	0



\$18,284. Approximately 62 percent of the fathers of the children in this school are professional men. The 1970 median education level of the adults in this school district was 13.5 years. The percent of males ages 16 through 21 not high school graduates or currently attending high school was 3.6. Of the males over the age of 16, 1.5 percent were unemployed. The percent of adults with incomes below the 1970 federal poverty level was 2.3.

School B has approximately 365 students. Ninety-eight percent of these students were white. The average sixth grade reading achievement score, as measured by the Stanford Achievement Test, was 7.2 (grade equivalent). The average sixth grade mathematics achievement score was 6.1. The average sixth grade I.Q. for this school, as measured by the Large-Thorndike Intelligence Test, was 105.

School C is located in a suburban community outside a large city. The 1970 median income of the residents in this school's district was \$20,489. Approximately 81 percent of the fathers of the children in this school were professional men. The 1970 median education level of the adults in this school district was 15.5 years. The percent of males ages 16 through 21 who were not high school graduates or currently attending high school was 1.9. Of the males over the age of 16, 2.5 percent were unemployed. The percent of adults with incomes below the 1970 federal poverty level was 2.4.

School C has approximately 350 students. Ninety-seven percent of these students were white. The average sixth grade reading achievement score, as measured by the Stanford Achievement Test, was 7.8 (grade equivalent). The average sixth grade mathematics achievement score was

6.8. The average sixth grade I.Q. for this school, as measured by the Lorge-Thorndike Intelligence Test, was 112.

School D is located in a community of approximately 85,000 people in a rural area of the state. The 1970 median income of the residents in this school's district was \$11,053. However, the area of the district served by this school includes many new homes valued at higher than the district average and the principal of School D estimates that the income of the residents in his school's attendance area to be much higher at \$16,800. Approximately 52 percent of the fathers of the children in this school are professional men. The 1970 median education level of the adults in this school district was 12.7 years. The percent of males ages 16 through 21 who were not high school graduates or currently attending high school was 6.0. Of the males over the age of 16, 4.4 percent were unemployed. The percent of males ages 16 through 21 who were not high school graduates or currently attending high school was 6.0. Of the males over the age of 16, 4.4 percent were unemployed. The percent of adults with incomes below the 1970 federal poverty level was 6.3.

School D has approximately 410 students. Ninety-five percent of these students were white. The average sixth grade reading achievement score, as measured by the Stanford Achievement Test, was 5.5. The average sixth grade mathematics achievement score was 5.1 (grade equivalent). The average sixth grade I.Q. for this school, as measured by the Lorge-Thorndike Intelligence Test, was 103.

School E is located in a community of approximately 85,000 people in a rural area of the state. The 1970 median income of the residents in this school's district was \$11,053. However, the area of the district served by this school includes many new homes valued at higher than the

district average and the principal of School E estimates that the income of the residents in his school's attendance area to be higher at \$13,000. Approximately 52 percent of the fathers of the children in this school are professional men. The 1970 median education level of the adults in this school district was 12.7 years. The percent of males ages 16 through 21 who were not high school graduates or currently attending high school was 6.0. Of the males over the age of 16, 4.4 percent were unemployed. The percent of adults with incomes below the 1970 federal poverty level was 6.3.

School E has approximately 443 students. Ninety-seven percent of these students were white. The average sixth grade reading achievement score, as measured by the Stanford Achievement Test, was 6.3 (grade equivalent). The average sixth grade mathematics achievement score was 6.1. The average sixth grade I.Q. for this school, as measured by the Large-Thorndike Intelligence Test, was 102.

The attempt was made, as much as was practical, to select the isolate group from a school population that was similar to that from which the Illinois Test of Psycholinguistic Abilities normative population subjects were chosen. While there were differences between the school populations from which the sample was chosen, they were, as a group, generally middle-class as the norm population schools were generally middle-class.

The children used in standardizing the Revised Edition of the Illinois Test of Psycholinguistic Abilities were selected from five communities. Bloomington, Decatur, Danville, and Urbana in Illinois and Madison in Wisconsin were the communities. Seventeen elementary schools

were selected within the communities. Only four percent of the children selected were Negro.

Eight age groups were represented in the standardization study, each spanning a six month age range. The youngest group began with age two years, seven months and the oldest group extended to age ten years, one month. Within each age level, girls and boys were equally represented.

The sample population upon which the Revised Edition, Illinois Test of Psycholinguistic Abilities was standardized included 962 children. The children were limited to those with the following characteristics:

- a. average intelligence (84-116 Intelligence Quotient on the Stanford-Binet Intelligence Scale),
- b. average achievement in school (not more than one grade equivalent score above or below grade level),
- c. no outstanding difficulty in personal-social adjustment,
- d. no sensory motor defects,
- e. families which spoke English in the home (Paraskevopoulos and Kirk, 1969, p. 53).

To further insure a sample of "average" children, a limited number of the socioeconomic characteristics of the families of the children were considered. The median income of the families was approximately \$300.00 above the national, 1960 census, average. Sixty-four percent of the families had heads of household classified as professional and administrative. The median number of school years completed by heads of household was "one year above the national level" for the five communities from which the normative population was selected. The Illinois Test of Psycholinguistic Abilities developers believed that their sample was representative of "average children" (Paraskevopoulos and Kirk, 1969, p. 51).

The notable differences between the two school populations from which the isolate sample and the normative population came were these:

- a. the number of school years completed for the norm group families was one year above the national 1960 average while for the isolate group families it was 2.99 years above the 1970 average;
- b. median family income for the norm group was approximately ~~\$300.00 above the national 1960 average while for the isolate~~ group it was from \$2,567.00 to \$12,003.00 above the 1970 average;
- c. achievement test scores for the norm group subjects were within one grade equivalent of their own level while the isolate group's school grade equivalency scores ranged, in reading, from 5.5 to 8.1 with a mean of 6.98, and in mathematics from 5.1 to 7.9 with a mean of 6.4.

Except for these dissimilarities the populations from which the isolate and the norm groups were chosen appear to resemble each other as representative of "middle class average."

#### Identification of the Population

To initiate the study, the superintendents of each of the districts were asked permission to allow one to two schools from each of their respective school districts to participate in the study. It was explained that the selection of the school, the grade level, and the class would all be done randomly. All agreed to allow the study and to cooperate in the randomization process. The schools were selected from within the districts using a table of random numbers, except one, from the Orinda Elementary

School District, which was selected on the basis of availability. In the same manner third and fourth grade classrooms were selected randomly, except one school in the Orinda Elementary School District in which all the third and fourth grade classes were utilized.

The elementary grades three and four were selected for this study for two reasons. First, the Illinois Test of Psycholinguistic Abilities was designed to be used with children no older than 10 years, 3 months of age. ~~Children in the fifth grade are usually older than 10 years, 3~~ months. Second, use of the G. S. Adams' Sociometric Survey requires written responses.<sup>1</sup> In order to have confidence that the written response would not in itself be a variable, no children below third grade level were included in the study. All subjects were in third or fourth grade and their ages ranged from 8 years, 9 months to 10 years, 3 months.

As stated earlier, classes were selected in four of the five schools using a table of random numbers. In the fifth school all third and fourth grade classes participated in the study.

#### The G. S. Adams' Sociometric Survey

The testing instrument used in the study to measure social isolation was the sociometric survey. The sociometric survey was selected because it measures the number of social isolates and fringe isolates within a classroom. The Georgia Sachs Adams' survey was selected because (a) it contained no negative questions (With whom would you least like to play?) which might cause negative child and parent reactions, and (b) it was

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<sup>1</sup>The G. S. Adams' survey can be administered in an individual interview setting with the subjects giving verbal responses. This approach was rejected by the researcher as not practical.

short and easy to administer in the context of the classroom. The Georgia Sachs Adams' survey asks the following questions:

1. With whom would you like to sit?

1st. \_\_\_\_\_

2nd. \_\_\_\_\_

3rd. \_\_\_\_\_

2. With whom would you like to work?

1st. \_\_\_\_\_

2nd. \_\_\_\_\_

3rd. \_\_\_\_\_

3. With whom would you like to work on a committee?

1st. \_\_\_\_\_

2nd. \_\_\_\_\_

3rd. \_\_\_\_\_

4. With whom would you like to play?

1st. \_\_\_\_\_

2nd. \_\_\_\_\_

3rd. \_\_\_\_\_

Although there is no reliability coefficient for the Georgia Sachs Adams' sociometric survey, the questions in it are quite similar to those used by other sociometric surveys where reliability coefficients have been computed. Gronlund (1955) found an average stability coefficient for his survey of .75 over a four-month interval when he studied groups of children in grades four through six. Bonney (1960), who has conducted several studies on stability of choices, found that stability coefficients obtained over a one-year period range from .67 to .84. Gronlund and Whitney (1956) obtained an average of .72 between the number of choices

each student received as seating companion (within the classroom) and the number he received as a future classmate (throughout the school). Chaires (1966) obtained a four day test-retest rank order coefficient of .74. Lilly (1971) found a six week test-retest reliability yielded a correlation coefficient of .82. A study by Thompson and Powell (1951) revealed correlation coefficients of .86 over two administrations of the sociometric survey given five weeks apart. Finally, Byrd, Damrin and Newstetter (1951, p. 177) conducted test-retest studies which included time intervals varying from two to nine weeks. They reported correlations of from .70 to .89 with a median of .76. As might be expected, when the time interval between test and retest is increased, the degree of constancy of sociometric ranks is lowered.

Commenting on the consistency of choice from item to item of the survey itself, Adams (1964, p. 99) said:

When the consistency of sociometric status from one criterion to another has been studied, the correlations have naturally varied in some degree with the similarity of the criteria. In a study of 1,258 sixth-graders, by Gronlund, five choices were requested for each of three criteria: seating companions, work companions, and play companions. The intercorrelations among criteria ranged from .76 to .89. The highest correlations were between number of choices received as seating companion and as work companion; the lowest correlations were between work and play criteria.

When properly obtained, according to Bonney (1960, p. 118), sociometric data have validity for the following classroom uses:

. . . (a) to form subgroups which are composed of persons who have indicated preferences for each other, (b) to study changes in interpersonal relations and in the social structure of a group over a particular time interval, (c) to determine the extent to which students of different racial, religious, and social-class grouping accept each other, (d) to locate individuals and small groups of individuals who are outstanding centers of influence in a particular population in order to utilize their social prestige in the management of the group, and (e) to locate individuals who are isolates or fringers in order to plan some kind of assistance for them so they may achieve some degree of recognition and feeling of belonging.



The validity of the sociometric survey is supported in two distinct ways. The first is that since it is supposed to measure choice behavior it is valid by definition (Jennings, 1950; Pepinsky, 1949). The other way is to relate sociometric results to psychological and sociological variables (Lindzey and Borgatta, 1954, Chapter 11; Mouton, Blake, and Fruchter, 1955). Some of the variables used have been observed behavior, teachers' judgments, other measures of social adjustment and measures of personal adjustment.

Bonney (1955) and Bonney and Powell (1953) found in two separate studies that when observed systematically elementary school pupils previously identified as of high sociometric status differed significantly from low sociometric status pupils in 25 different behavior categories. Byrd, Damrin and Newstetter (1951, p. 179) found correlation coefficients of .76 and .80 when comparing sociometric choices of fourth grade pupils with "real life" choices observed in school and on the playground.

Gronlund (1951, p. 39) obtained correlation coefficients of from .55 to .62 when comparing rank in sociometric choice with teachers' predictions of student choices. Other investigations have revealed almost identical results (Gronlund, 1956; Gronlund, 1955; Gronlund and Whitney, 1958).

Schoeppe and Havighurst (1952, p. 352) studied the relationship between peer acceptance and achievement of other developmental tasks. They collected information on 32 different measures of adjustment. They found correlation coefficients of from .57 to .83 when comparing the measures of adjustment with sociometric results. Kidd (1951, p. 233) reported that college men who were of low sociometric status were frequently described as "domineering, belligerent, noisy and exhibiting attention-seeking and inconsiderate behavior."

Grossman and Wrighter (1948) reported that sixth-graders who were highly chosen on a sociometric test had significantly higher adjustment scores on the California Test of Personality than did pupils with low sociometric status. Scandrette (1952) found that low sociometric status pupils tended to feel insecure in their school relations. They also felt that both teachers and pupils had little personal interest in them and treated them unfairly.

#### Description of the Illinois Test of Psycholinguistic Abilities

The instrument which was used to determine communication skill of the subjects was the Illinois Test of Psycholinguistic Abilities. All the twelve subtests of the Illinois Test of Psycholinguistic Abilities were given to the children, but only ten were used in this study; the two supplemental tests were not used. The test is divided into two levels, the Representational level and the Automatic level. The processes evaluated on these levels include the receptive, organizing, and expressive processes. The channels through which this communication proceeded were the auditory to vocal and the visual to memory.

The psycholinguistic model on which the Illinois Test of Psycholinguistic Abilities is based attempts to relate those functions whereby the intentions of one individual are transmitted (verbally or nonverbally) to another individual, and reciprocally, functions whereby the environment or the intentions of another individual are received and interpreted. It attempts to interrelate the processes which take place, for example, when one person received a message, interprets it, or becomes the source of a new signal to be transmitted. It deals with psychological functions of the individual which operate in communication activities (Paraskevopoulos and Kirk, 1969, p. 11).

The clinical model of the Illinois Test of Psycholinguistic Abilities is based on adaptations of the Osgood (1957a and 1957b) communications model. Alterations in the theoretical model were made due to test construction

necessities and to give it greater applicability to education and specifically to remedial education (Paraskevopoulos and Kirk, 1969, pp. 11-12).

#### Channels of Communication

The channels of communication are the routes through which the content of communication flows. These may include various combinations of sensory input and response output. The major input modes are auditory and visual. The major output modes are vocal and motor. The developers of the Illinois Test of Psycholinguistic Abilities, because of what they considered practical limitations, incorporated only the auditory-vocal and the visual-motor channels. "These channels were selected as being the most educationally relevant channels" (Paraskevopoulos and Kirk, 1969, p. 12).

#### Psycholinguistic Processes

. . . (a) the receptive process, that is, the ability involved in recognizing and/or understanding what is seen or heard; (b) the expressive process, that is, those skills necessary to express ideas either vocally or by gesture or movement; (c) an organizing process which involves the internal manipulation of percepts, concepts, and linguistic symbols (Paraskevopoulos and Kirk, 1969, p. 14).

#### Levels of Organization

This refers to the degree to which habits of communication have been developed within the individual. The Illinois Test of Psycholinguistic Abilities model postulated two levels, (a) the representational level, ". . . which requires the mediating process of utilizing symbols which carry the meaning of an object;" (b) the automatic level, ". . . in which the individual's habits of functioning are less voluntary but highly organized and integrated" (Paraskevopoulos and Kirk, 1969, p. 14).

Process, level, and channel define the psycholinguistic abilities purported to be tapped by the Illinois Test of Psycholinguistic Abilities. "A psycholinguistic ability is defined as a specific process at a specific level via a specific channel" (Paraskevopoulos and Kirk, 1969, p. 14).

The descriptions of the individual subtests follow:

Representational level

1. Receptive process:

- a. ~~Auditory Reception.~~ ~~The subject is asked to respond with~~  
a "yes" or "no" answer to verbally presented material. The child must derive meaning from the statement and respond appropriately. The vocabulary difficulty increases as the subtest proceeds. Items include "Do dials yawn?," "Do wingless birds soar?," etc.
- b. Visual Reception. This subtest measures a child's ability to obtain "meaning from visual symbols." The subject is asked to observe a stimulus picture and then to find one on a following page. The correct response is the one which is most conceptually similar to the picture.

2. Organizing process:

- a. Auditory Association. This subtest taps the subject's ability to respond to verbal analogies. The student must complete the analogy by replying with the correct word for the statement; i.e., "A dog has hair; a fish has \_\_\_\_\_."
- b. Visual Association. The subject is asked to associate one of four choices of pictures with the stimulus picture. He is asked to respond to "What goes with this?" and "Which one of these?" The subtest increases in difficulty as the

presentation of the material changes to that of a visual analogy much like the previous verbal analogies.

3. Expressive process:

- a. Verbal Expression. The subject is asked to respond to four familiar objects presented individually. His response is scored on the basis of the content of the response and the number of "discrete, relevant, and factual concepts expressed" (Paraskevopoulos and Kirk, 1969, p. 20).
- b. Manual Expression. This subtest evaluated the ability of the student to express ideas through gestures. The child pantomimes the appropriate action in response to a picture such as a telephone.

Automatic level

1. Closure:

- a. Grammatical Closure. The child is presented with both auditory and visual stimuli to which he is asked to respond orally. The task measures the child's ability to respond orally with the appropriate grammatic and syntax inflections. An example would be "Here is a dog; here are two \_\_\_\_\_.  
(dogs)"
- b. Visual Closure. This subtest asks the child to identify a familiar object from a complex background. The objects are often incomplete or partially obstructed and vary in degree of difficulty. The item is timed and thirty seconds is allowed for each picture strip.
- c. Supplementary Test 1. Auditory closure. The student is asked to respond to the auditory stimulus by completing the word. The question is posed, "What am I talking about?"

Syllables or sounds are omitted from the stimulus word, and the student must fill them in to produce the complete word. An example would be "airpl\_\_\_\_."

- d. Supplementary Test 2. Sound blending. This subtest presents the sound of a word spoken singly with half-second intervals through each. The child is asked to put the sounds together and tell what the word is. Both real and nonsense words are included.

## 2. Sequential memory:

- a. Auditory Sequential Memory. The subject is asked to repeat a series of digits of increasing lengths. The initial repetition is of two digits, and the complexity increases to eight digits. The digits are repeated at the rate of two per second, and the subject is given two trials if it is necessary. Less credit is given for a response on the second trial.
- b. Visual Sequential Memory. This subtest requires the subject to reproduce a series of non-meaningful figures from memory. The subject studies the sequence of the figures for five seconds and then is asked to reproduce the order with chips with figures on them. The child is allowed two trials, and the sequences increase in complexity from two to eight figures.

## Illinois Test of Psycholinguistic Abilities Reliability

Reliability includes two related concepts, internal consistency and stability.

Internal consistency reflects the extent to which the items of the test represent a homogeneous set of measurements of some simple underlying trait, that is, consistency in results obtained throughout the test in a single administration. Stability reflects the extent to which the test yields consistent results from testing to testing; it indicates the dependability of the test for predictive purposes.

In psychological measurements two indices are used for quantitative description of test reliability: the reliability coefficient and the standard error of measurement. The reliability coefficient is expressed as the correlation coefficient between two sets of scores for the same individual. It expresses the consistency of the test score in relative terms by reflecting the consistency with which the individual maintains his position in the group on repeated measures. The standard error of measurement ( $SE_m$ ) expresses the consistency of performance in absolute terms and provides a statement of the size of the errors of measurement (Paraskevopoulos and Kirk, 1969, pp. 95-96).

The coefficients were corrected for restricted intelligence following Thorndike (1951, p. 595) since, theoretically, it might have been desirable to correct for range restrictions along each dimension identifiable in the standardization sample (norm population). However, this was not deemed practical for the test developers because certain statistics essential for correction were readily obtainable for intelligence only (Paraskevopoulos and Kirk, 1969, p. 96).

Internal consistency refers to the homogeneity of items within a test, and since the Illinois Test of Psycholinguistic Abilities subtests were designed to assess a relatively singular psycholinguistic ability, it is relevant to determine the level of item homogeneity. The coefficients reported below were computed in two ways. The subtests in which items were scored "pass" or "fail" had the coefficients computed by the Kuder-Richardson #20 formula. The other subtests' coefficients were computed using Hoyt's analysis of variance procedure.

Table 2

Internal Consistency Mean and  
Range<sup>2</sup> of Coefficients for the Ten Main  
Subtests of the  
Illinois Test of Psycholinguistic Abilities,  
Corrected for Restricted Intelligence Range

Subtests	$\bar{X}_r$	Range
Auditory Reception	.94	.90-.96
Visual Reception	.89	.82-.93
Auditory Association	.91	.86-.94
Visual Association	.87	.80-.91
Verbal Expression	.82	.72-.88
Manual Expression	.87	.82-.91
Grammatical Closure	.84	.80-.89
Visual Closure	.74	.67-.83
Auditory Sequential Memory	.90	.85-.95
Visual Sequential Memory	.80	.60-.96

Stability reliability evaluates how constant the scores are likely to be if the test is repeated after a lapse of time.

If test-retest scores in the absence of intervening remedial treatment are not relatively constant, such scores cannot be readily used to evaluate the effect of remedial treatment, since the change evidenced by the test scores may be due to measurement error alone (Paraskevopoulos and Kirk, 1969, p. 105).

A high reliability coefficient signifies that the precision of the test is high, that daily changes in the subject or the testing environ-

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<sup>2</sup>The data were presented in Paraskevopoulos and Kirk (1969, p. 103) divided by age groups. They were summarized here for a more condensed presentation.



ment do not effect test scores. It also indicates that the trait measured by the test is stable over time.

A sample of the original normative population was selected to represent all age ranges and communities of the population. One hundred ninety-eight subjects were retested at an interval of five months. The data are presented in Table 3.

The standard error of measurement reflects consistency of a subject's performance. ~~Summary of  $SE_m$  for the Illinois Test of Psycholinguistic~~ Abilities is presented in Table 4.

. . . it provides the magnitude of errors of measurement expressed in the same units in which the individual scores are expressed. The  $SE_m$  is an estimate of the standard deviation of a set of obtained scores from their "true" scores, and as such is an index of the standard deviation of the errors that would be obtained for a series of measurements of the same individual (Paraskevopoulos and Kirk, 1969, p. 112).

#### Administration of the Sociometric Survey

Administration of the survey was done in the subjects' regular classrooms. Supervision was given by the researcher, and in some cases, by another trained researcher, Richard Scardamaglia. The survey form was read to all subjects in the study. The administration was conducted in as natural and informal a fashion as was possible. Children were asked not to discuss their choices among themselves. Each administration of the survey was introduced to each class with the following statement: "I would like to know which children in this room each of you would like to work and play with. Would you tell me which children you would like to be with most? Your choices will not be mentioned to anyone else." Assistance was given by the teacher or the researchers to those children in need of it. The teacher aided the subjects in spelling names they wished to place on the survey.

### Administration of the Illinois Test of Psycholinguistic Abilities

The Illinois Test of Psycholinguistic Abilities was administered to 29 of the subjects individually during May and June of 1974. In order to increase the number of subjects in the study an additional 11 subjects were identified as isolates or highly fringe isolates and individually given the Illinois Test of Psycholinguistic Abilities in May of 1975. Each subject was tested between the hours of 8:00 a.m. and 1:50 p.m. on a school day. The subjects were released from their classrooms for 1 hour and 30 minutes for the testing. The test administration took place in rooms selected for proper ventilation, adequate lighting, and privacy. All testing was done in conformity to the Examiner's Manual, Illinois Test of Psycholinguistic Abilities, Revised Edition, 1968. All scoring was also done according to the manual instructions. There were no irregularities in the testing experience.

### Hypotheses and Statistical Procedure

The specific comparisons of this study for the purpose of determining whether Illinois Test of Psycholinguistic Abilities scores of the isolate sample differ with those of the normative population are presented by means of the following research hypotheses:

Hypothesis 1: The Auditory Reception abilities of the isolate subjects are inferior to those of the subjects of the normative population.

Hypothesis 2: The Visual Reception abilities of the isolate subjects are inferior to those of the subjects of the normative population.

Table 3

Five-Month Stability Mean  
And Range of Coefficients for Children  
Ages 4-6 Years for the Ten Main  
Subtests of the Illinois Test of Psycholinguistic  
Abilities, Corrected for Restricted  
Intelligence Range<sup>3</sup>

Subtests	$\bar{X}_r$	Range
Auditory Reception	.68	.63-.79
Visual Reception	.65	.56-.69
Auditory Association	.86	.83-.90
Visual Association	.62	.54-.75
Verbal Expression	.70	.63-.74
Manual Expression	.64	.55-.70
Grammatic Closure	.79	.72-.87
Visual Closure	.75	.70-.82
Auditory Sequential Memory	.83	.75-.89
Visual Sequential Memory	.46	.28-.71

Hypothesis 3: The Auditory Association abilities of the isolate subjects are inferior to those of the subjects of the normative population.

Hypothesis 4: The Visual Association abilities of the isolate subjects are inferior to those of the subjects of the normative population.

<sup>3</sup>Data from Paraskevopoulos and Kirk (1969, p. 108).

Table 4

Mean and Range of Standard  
Errors of Measurement for Scaled Scores  
for the Ten Main Subtests of the Illinois  
Test of Psycholinguistic Abilities<sup>4</sup>

Subtests	$\overline{XSE}_m$	Range
Auditory Reception	2.03	1.8-2.4
Visual Reception	2.29	2.2-3.1
Auditory Association	2.68	2.3-3.1
Visual Association	2.71	2.5-3.0
Verbal Expression	3.26	2.8-4.2
Manual Expression	2.60	2.5-2.9
Grammatic Closure	3.34	3.1-3.8
Visual Closure	3.66	3.2-4.3
Auditory Sequential Memory	2.26	1.8-3.1
Visual Sequential Memory	3.13	1.2-4.2

Hypothesis 5: The Verbal Expression abilities of the isolate subjects are inferior to those of the subjects of the normative population.

Hypothesis 6: The Manual Expression abilities of the isolate subjects are inferior to those of the subjects of the normative population.

Hypothesis 7: The Grammatic Closure abilities of the isolate subjects are inferior to those of the subjects of the normative population.

<sup>4</sup>Data from Paraskevopoulos and Kirk (1969, p. 116).

Hypothesis 8: The Auditory Sequential Memory abilities of the isolate subjects are inferior to those of the subjects of the normative population.

Hypothesis 9: The Visual Sequential Memory abilities of the isolate subjects are inferior to those of the subjects of the normative population.

Hypothesis 10: The Visual Closure abilities of the isolate subjects are inferior to those of the subjects of the normative population.

The Student t ratio was used to determine significant difference between means. The confidence interval approach presented by George A. Ferguson (1971, p. 140) was employed. The ratio is

$$t = \frac{\bar{X} - \mu}{S_{\bar{X}}}$$

where  $\bar{X}$  = any isolate group subtest score mean,

$\mu$  = the normative population mean,

$S_{\bar{X}}$  = the estimated standard error of the mean for the isolate sample.

The selected level of significance was  $\alpha = .05$ . The two-tailed test was employed because there was inadequate empirical or theoretical basis to justify a directional test.

The .95 confidence interval for each subtest mean of the isolate sample was reported. The purpose of this procedure was to identify the probable interval within which the population, all isolate and highly fringe isolate pupils, mean would lie for each of the ten Illinois Test of Psycholinguistic Abilities subtests.

One-way analysis of variance and the Newman-Keuls  $q$  statistic multiple comparison procedure were used to identify differences between subtest means of the isolate sample. The following formulae were used:

$$\text{ANOVA } F = \frac{\sum \left( \frac{\sum X^2}{n} - \frac{(\sum X)^2}{N} \right) / K - 1}{\frac{(\sum X)^2}{N} - \frac{(\sum X)^2}{N} / N - K}$$

$$\text{Newman-Keuls } q = \geq 1 - \alpha^{\frac{1}{r}}, \text{ fe}$$

where  $r$  = number of means in subset being evaluated,

fe = residual degrees of freedom.

Correlation matrices were computed to study the relationship between subtest scores of the isolate sample. The Pearson correlation formula was used.

$$r = \frac{\sum XY - \frac{(\sum X)(\sum Y)}{N}}{\left\{ \left[ \sum X^2 - \frac{(\sum X)^2}{N} \right] \left[ \sum Y^2 - \frac{(\sum Y)^2}{N} \right] \right\}^{\frac{1}{2}}}$$

The facilities of the San Francisco State University Computer Center were utilized for computations. The SPSS programs CODEBOOK, PEARSON-CORR, T-TEST, and ONEWAY were used.

### Summary

Forty students were selected, by means of a sociometric survey, from third and fourth grade classes. These students were those who received one or no nominations on the survey. This group was designated the isolate and highly fringe isolate sample. This sample was then given the Illinois Test of Psycholinguistic Abilities. All pupils were enrolled in one of five schools in three Northern California school districts. The districts were chosen for their similarity in certain respects to the districts utilized in the norming procedures for the

Illinois Test of Psycholinguistic Abilities and cooperation of administration. That is, all were located in suburban or small-city communities unlike those found in a large inner-city area. Each school was identified by median education of adults, percent of males not high school graduates and not in high school, median family income within the district, percent of unemployed adults, percent of those employed as professionals, percent of persons with income below the 1970 Federal Poverty level, average sixth grade I.Q., average sixth grade mathematics and reading achievement scores, and racial composition of the school population.

The isolate subjects were most similar to the normative subjects in the areas of occupation of heads of household, average sixth grade I.Q. (by school), and percentage of racial minorities in the community. They were less similar in median school years completed by adults, median family income, and, to an even lesser degree, average sixth grade achievement test scores. Also the isolate group age range was from eight years, nine months to ten years, three months while the normative population ranged from two years, seven months to ten years, one month.

The instrument used to identify the social isolate group was the G. S. Adams' Sociometric Survey, and the Illinois Test of Psycholinguistic Abilities was employed to identify the level of communication skills.

The statistical procedures used for the purpose of determining whether or not the mean scores of the isolate sample on each of the ten Illinois Test of Psycholinguistic Abilities subtests differed from those of the normative population included the t test and confidence intervals.

Analysis of relationships and differences of the subtest scores within the isolate sample were completed using one-way ANOVA, Newman-Keuls multiple comparison q procedure and Pearson correlation matrix.

## Chapter 4

### ANALYSIS OF THE DATA

#### Introduction

The data collected in this study was presented to determine if socially isolate elementary school pupils have communication skill deficiencies, as a group, when compared to a similar group of pupils who had not been selected on the basis of social isolation. The measure of communication skill was scores on the subtests of the Illinois Test of Psycholinguistic Abilities. The measure of social isolation was a score of one or no nominations on the G. S. Adams' sociometric survey.

The Illinois Test of Psycholinguistic Abilities scores of socially isolate pupils identified with the sociometric survey were compared with the mean scaled scores of the normative population. An appropriate test of significance was applied to determine whether this group differed from the reported norms of the Illinois Test of Psycholinguistic Abilities and to discover relationships and differences between subtest means within the isolate sample.

Four hundred forty-eight pupils from sixteen classes were given the sociometric survey. Forty-seven pupils were identified as isolate, no nominations on the survey, or highly fringe isolate, one nomination on the survey. These pupils formed the isolate group. Seven of the number were not given the Illinois Test of Psycholinguistic Abilities due to sickness, extended absenteeism, or, in one case, denial of parental consent.



### Tests of Hypotheses

Presented in this section are the results of the t test comparisons of the isolate sample and the normative population. Each hypothesis is stated in the null form. A brief description of the ability assessed by each of the Illinois Test of Psycholinguistic Abilities subtests is also included.

#### Hypothesis 1

The first hypothesis tested pertained to the Auditory Reception subtest. Stated in the null form it was as follows: The mean of the isolate subjects on the Auditory Reception subtest does not differ from that of the normative population.

The findings in Table 5 indicate that the mean of the isolate subjects was significantly lower than that of the normative population. The abilities of the isolate subjects, as a group, to derive meaning from verbally presented material was inferior to those of the normative population. Five of the isolate subjects had scores of ten or more on this subtest below the mean of their own scores on the other subtests. This is identified by the Illinois Test of Psycholinguistic Abilities developers as a substantial discrepancy, indicating disability (Kirk, et al., 1968, pp. 95-96). A review of the Illinois Test of Psycholinguistic record forms of the isolate sample did not reveal any pattern of difficulties. None of the subjects appeared to persevere and there was no general lack of comprehension of vocabulary. The isolate subjects simply reached a ceiling level sooner than the normative population.

Table 5

Student's t Test Results for the Scaled Scores  
of the Auditory Reception Subtest of the  
Isolate Group and the  
Normative Population

Group	N	Mean	.95 conf. interval	SD	t*	probability
Isolate	40	33.80	±1.79	5.62	-2.472	<u>p</u> <.02
Norm	962	36.00	±0.32	6.00		

\*A t-ratio of 1.96 was required for statistical significance at the .05 level.

#### Hypothesis 2

The second hypothesis tested pertained to the Visual Reception subtest. Stated in the null form it was as follows: The mean of the isolate subjects on the Visual Reception subtest does not differ from that of the normative population.

The statistical findings related to the test of this hypothesis are presented in Table 6. They indicate that the mean of the isolate subjects was significantly higher than that of the normative population. The abilities of the isolate subjects, as a group, to gain meaning from visual symbols was superior to those of the normative population.

The Illinois Test of Psycholinguistic Abilities record forms reveal no particular characteristic that would account for inflation of subjects' scores. However, Smith (1970, p. 69) suggests that on the Visual Reception subtest some children may score higher than on other subtests because of the activity of page turning of the picture booklet, exceptionally stimulating materials, and the fact that memory strengths are

not required. She further cites Hellmuth (1968, p. 400) to support the idea that some children with "learning problems" have learned to effectively utilize picture context cues to compensate for inability to read words with facility.

Table 6

Student's t Test Results for the Scaled Scores  
of the Visual Reception Subtest of the  
Isolate Group and the  
Normative Population

Group	N	Mean	.95 conf. interval	SD	t*	probability
Isolate	40	38.13	±2.05	6.41	2.104	<u>p</u> <.05
Norm	962	36.00	±0.32	6.00		

\*A t-ratio of 1.96 was required for statistical significance at the .05 level.

### Hypothesis 3

The third hypothesis tested related to the Auditory Association subtest. The null statement of the hypothesis follows: The mean of the isolate subjects on the Auditory Association subtest does not differ from that of the normative population.

The findings in Table 7 indicate that the mean of the isolate subjects was significantly higher than that of the normative population. The abilities of the isolate subjects, as a group, to relate concepts presented orally were superior to those of the normative population.

The attention, memory, and comprehension skills required for the Auditory Association subtest are similar to those for the Auditory Reception subtest. Paraskevopoulos and Kirk (1969, p. 188) report that these

two subtests are highly correlated. This information is inconsistent with the results of the current study.

Table 7

Student's t Test Results for the Scaled Scores  
of the Auditory Association Subtest of the  
Isolate Group and the  
Normative Population

Group	N	Mean	.95 conf. interval	SD	t*	probability
Isolate	40	38.25	$\pm 1.58$	4.98	2.848	$\underline{p} < .05$
Norm	962	36.00	$\pm 0.32$	6.00		

\*A t-ratio of 1.96 was required for statistical significance at the .05 level.

#### Hypothesis 4

The fourth hypothesis tested related to the Visual Association subtest. The null statement of the hypothesis follows: The mean of the isolate subjects on the Visual Association subtest does not differ from that of the normative population.

The findings in Table 8 indicate that the mean of the isolate subjects was significantly higher than that of the normative population.

There was no pattern of correct or incorrect responses on this subtest by the isolate subjects. Both this subtest and the Visual Reception subtest utilize pictures. However, the tasks differ in that the Association subtest requires analogous thinking while the noting of commonalities is required in the Reception subtest. The isolate subjects demonstrated relative strength at both tasks. That is, the means of both subtests were significantly larger than the means of the normative population.

Overall, no perseveration of response or confusion was demonstrated by the subjects.

Table 8

Student's t Test Results for the Scaled Scores  
of the Visual Association Subtest of the  
Isolate Group and the  
Normative Population

Group	N	Mean	.95 conf. interval	SD	t*	probability
Isolate	40	38.75	±1.72	5.37	2.090	<u>p</u> <.05
Norm	962	36.00	±0.32	6.00		

\*A t-ratio of 1.96 was required for statistical significance at the .05 level.

#### Hypothesis 5

The fifth hypothesis tested pertained to the Verbal Expression subtest. The hypothesis, stated in the null form, was as follows: The mean of the isolate subjects on the Verbal Expression subtest does not differ significantly from the normative population.

The findings reported in Table 9 indicate that the isolate subjects did not differ significantly from that of the normative population. The abilities of the isolate subjects, as a group, to express their own concepts verbally did not differ from those of the normative population.

This subtest requires the subject to express himself in "relevant, discrete and factual" terms (Kirk, 1968, p. 51). The subject is asked to observe an object and to "tell about it." The subjects generally approached this task matter-of-factly. They were not distracted by the

object and few demonstrated characteristics of the object, such as bouncing the ball or rolling the button, which is distracting.

Table 9

Student's t Test Results for the Scaled Scores  
of the Verbal Expression Subtest of the  
Isolate Group and the  
Normative Population

Group	N	Mean	.95 conf. interval	SD	t*	probability
Isolate	40	35.60	±1.54	4.82	-0.532	ns
Norm	962	36.00	±0.32	6.00		

\*A t-ratio of 1.96 was required for statistical significance at the .05 level.

#### Hypothesis 6

The sixth hypothesis tested pertained to the Manual Expression subtest. The null form of the hypothesis was: The mean of the isolate subjects on the Manual Expression subtest does not differ from that of the normative population.

The statistical findings in Table 10 indicate that the mean of the isolate subjects was significantly higher than that of the normative population.

The subjects all responded to the tasks in this subtest eagerly and, generally, with animation and spontaneity. No particular pattern of responses was revealed, simply a relatively high ceiling. The task was perceived as an enjoyable activity. Most of the subjects were able to present well organized responses to the test questions.

Table 10

Student's t Test Results for the Scaled Scores  
of the Manual Expression Subtest of the  
Isolate Group and the  
Normative Population

Group	N	Mean	.95 conf. interval	SD	t*	probability
Isolate	40	39.28	±1.48	4.66	4.517	<u>p</u> <.001
Norm	962	36.00	±0.32	6.00		

\*A t-ratio of 1.96 was needed for statistical significance at the .05 level.

#### Hypothesis 7

The seventh hypothesis tested related to the Grammatic Closure subtest. The hypothesis, stated in the null form, was as follows: The mean of the isolate subjects on the Grammatic Closure subtest does not differ from that of the normative population.

The statistical findings of Table 11 indicate that the mean of the isolate sample did not differ significantly from that of the normative population. The abilities of the isolate subjects, as a group, to make use of redundancies of oral language did not differ from those of the normative population. Five of the isolate subjects had scores of ten or more on this subtest below the mean of their own scores on the other subtests. This is identified by the Illinois Test of Psycholinguistic Abilities developers as a substantial discrepancy, indicating disability (Kirk, et al., 1968, pp. 95-96).

The tasks required in this subtest were perceptual speed and closure as well as memory. Three other subtests are closely related to Grammatic

Closure. They are Auditory Reception, Auditory Association, and Visual Association (Paraskevopoulos and Kirk, 1969, p. 187). The isolate subjects had a lower mean than the normative population on the first of the related subtests and higher means on the other two. The mean on the Grammatic Closure subtest, then, falls into no particular pattern.

Table 11

Student's t Test Results for the Scaled Scores  
of the Grammatic Closure Subtest of the  
Isolate Group and the  
Normative Population

Group	N	Mean	.95 conf. interval	SD	t*	probability
Isolate	40	34.56	±2.28	7.13	-1.280	ns
Norm	962	36.00	±0.32	6.00		

\*A t-ratio of 1.96 was required for statistical significance at the .05 level.

#### Hypothesis 8

The eighth hypothesis tested related to the Auditory Sequential Memory subtest. The null hypothesis was as follows: The mean of the isolate subjects on the Auditory Sequential Memory subtest does not differ from that of the normative population.

The findings reported in Table 12 indicate that the mean of the isolate subjects was significantly higher than that of the normative population. The abilities of the isolate subjects, as a group, to reproduce from memory sequences of digits were superior to those of the normative population.



The Illinois Test of Psycholinguistic Abilities manual cites this subtest as being difficult. However, the isolate subject's scores were high, with a mean significantly larger than the norm population. With the exception of two subjects, they attacked it with about the same confidence as the other tests. Seven subjects had scaled scores in the 47 to 50 range. The low score was 26. No particular pattern is to be noted in a review of the record forms.

Table 12

Student's t Test Results for the Scaled Scores  
of the Auditory Sequential Memory Subtest  
of the Isolate Group and the  
Normative Population

Group	N	Mean	.95 conf. interval	SD	t*	probability
Isolate	40	39.20	±2.15	6.73	3.047	<u>p</u> <.01
Norm	962	36.00	±0.32	6.00		

\*A t-ratio of 1.96 was required for statistical significance at the .05 level.

#### Hypothesis 9

The ninth hypothesis tested pertained to the Visual Sequential Memory subtest. The null hypothesis was as follows: The mean of the isolate subjects on the Visual Sequential Memory subtest does not differ from that of the normative population.

The findings reported in Table 13 indicate that the mean of the isolate subjects was significantly higher than that of the normative population. The abilities of the isolate subjects, as a group, to reproduce sequences of nonmeaningful figures from memory were superior to

those of the normative population. Thirteen of the isolate subjects had scores of ten or more on this subtest above the mean of their own scores on the other subtests. This is identified by the Illinois Test of Psycholinguistic Abilities developers as a substantial ability to perform the tasks required by the subtests involved (Kirk, et al., 1968, pp. 95-96).

On this subtest the subjects were required to place chips with unfamiliar symbols on them in a specified order. The mean of the isolate subjects' scaled scores was higher on the Visual Sequential Memory subtest than on any other subtest. Many of the subjects assigned names or sounds to the symbols used in this subtest. This mnemonic device seemed to be perceived as of help by the subjects.

#### Hypothesis 10

The tenth hypothesis pertained to the Visual Closure subtest. The null form of the hypothesis was as follows: The mean of the isolate subjects on the Visual Closure subtest does not differ from that of the normative population.

Table 13

Student's t Test Results for the Scaled Scores  
of the Visual Sequential Memory Subtest  
of the Isolate Group and the  
Normative Population

Group	N	Mean	.95 conf. interval	SD	t*	probability
Isolate	40	41.98	±3.66	11.42	3.298	<u>p</u> <.001
Norm	962	36.00	±0.32	6.00		

\*A t-ratio of 1.96 was required for statistical significance at the .05 level.

The statistical findings reported in Table 14 indicate that the mean of the isolate sample did not differ significantly from that of the normative population. The abilities of the isolate subjects, as a group, to identify common objects from an incomplete visual presentation were no different from those of the normative population.

Almost all the subjects appeared to feel satisfaction with their performance on this subtest. The procedure is a "game-like" seeking of hidden objects. No subjects displayed confusion or hesitance with the required task. The scaled scores ranged from 18 to 54, with 13 subjects scoring in the 34 to 38 range. This subtest was one of the few to be timed, but this did not seem to cause additional anxiety in the subjects.

Table 14

Student's t Test Results for the Scaled Scores  
of the Visual Closure Subtest of  
the Isolate Group and  
the Normative Population

Group	N	Mean	.95 conf. interval	SD	t*	probability
Isolate	40	36.58	±2.06	6.42	0.324	ns
Norm	962	36.00	±0.32	6.00		

\*A t-ratio of 1.96 was required for statistical significance at the .05 level.

Table 15

Summary of t Test Results  
Comparing Isolate Subtest Means with  
Norm Population Subtest Means

Subtest	Isolate Mean Higher	No Difference	Isolate Mean Lower
Auditory Reception			X
Visual Reception	X		
Auditory Association	X		
Visual Association	X		
Verbal Expression		X	
Manual Expression	X		
Grammatic Closure		X	
Auditory Memory	X		
Visual Memory	X		
Visual Closure		X	

Table 16

One Way Analysis of Variance Results for  
Illinois Test of Psycholinguistic Abilities  
Subtest Means of the Isolate  
Sample of the Study

Source of Variance	Sum Squares	Degrees of Freedom	Mean Squares	F* Value	probability
Between Subtests	2,183.94	9	242.66	5.60	<u>p</u> <.01
Between Persons	2,681.88	39	68.77	--	
Residual	15,209.37	351	43.33	--	
Total	20,075.19	399			

\*A value of 2.46 was required for statistical significance at the .01 level.

### Supplementary Analysis

An analysis of variance was computed to identify differences between subtest means of the isolate sample. This was done to provide a detailed description of the sample's communication skill profile. Table 16 reports the findings of significant difference of the ANOVA. To determine the pattern of subtest difference between means of the sample the Newman-Keuls multiple comparison procedures were used, results of which are reported in Table 17.

There were differences at the .05 level between the mean of the Visual Sequential Memory subtest and the means of the following subtests: Visual Association, Visual Closure, Verbal Expression, Grammatic Closure and Auditory Reception. There were differences at the .05 level between the mean of the Manual Expression subtest and the means of the following subtests: Verbal Expression, Grammatic Closure, and Auditory Reception. There were differences between the mean of the Auditory Sequential Memory subtest and the means of the Grammatic Closure and Auditory Reception subtests.

Differences were also found between the Auditory Association and the Auditory Reception subtests; the Visual Reception and the Auditory Reception subtests; and the Visual Reception and the Auditory Reception subtest. The Auditory Reception subtest was significantly different from six of the other subtests, being lower, while the Visual Sequential Memory was significantly higher than five of the other subtests.

Table 18 is the correlation matrix of the scores of the Illinois Test of Psycholinguistic Abilities subtests for the isolate sample.

The Auditory Reception and Auditory Association are both of the auditory input channel. They are also both of the same level of organization:

Table 17

Newman-Keuls Multiple Comparison Results for  
 Illinois Test of Psycholinguistic Abilities  
 Subtest Means of the Isolate Sample  
 of the Study

	VM	ME	AM	AA	VR	VA	VC	VE	GC	AR
Visual Memory		2.70	2.78	3.73	3.85	4.43*	5.65*	6.38*	7.40*	8.18*
Manual Expression			.06	1.03	1.15	1.53	2.95	3.68	4.70	5.48*
Auditory Memory				.95	1.08	1.45	2.88	3.60	4.63*	5.40*
Auditory Association					.13	.50	1.93	2.65	3.68	4.45*
Visual Reception						.38	1.80	2.53	3.55	4.33*
Visual Association							1.43	2.15	3.18	3.98*
Visual Closure								.73	1.75	2.53
Verbal Expression									1.03	1.80
Grammatical Closure										.78
Auditory Reception										

\*a-values of critical difference .05

r 10 = 4.70

r 5 = 4.05

r 9 = 4.62

r 4 = 3.81

r 8 = 4.50

r 3 = 3.47

r 7 = 4.38

r 2 = 2.90

r 6 = 4.23

the representational. As would be expected the correlation is significant. However, the Auditory Reception mean of the isolate group was significantly lower than the mean of the normative population, while the mean of the Auditory Association mean of the isolate group was significantly higher than that of the normative population.

This gave support to the conclusion that relatively low Auditory Reception skills may be a characteristic of the communication skills of the isolate sample of this study, rather than a product of input channel or representational level of organization.

### Summary

This study compared the scaled score means for the ten subtests of the Illinois Test of Psycholinguistic Abilities of a sample of isolate and highly fringe isolate third and fourth grade subjects with the means of the subtest scaled scores for the normative population. The isolate sample was chosen from school districts with characteristics similar to those of the normative population. They were, generally, middle-class community districts.

The t test results revealed that the null was not supported with the first hypothesis, concerned with Auditory Reception. The isolate sample mean was significantly lower than the mean of the normative population. The mean difference was at the .02 level. Neither was the null hypothesis supported in regard to the Visual Reception subtest (.05 level of significance), the Auditory Association subtest (.01 level of significance), the Visual Association subtest (.05 level of significance), the Manual Expression subtest (.001 level of significance), the Auditory Sequential Memory subtest (.01 level of significance), nor the Visual

Table 18

Intercorrelations for the  
Illinois Test of Psycholinguistic Abilities  
Subtests of the Isolate Sample

Factors	1	2	3	4	5	6	7	8	9	10
1		.12	-.07	.46***	.01	.22	-.36*	.18	.46**	.09
2			-.02	.01	-.04	.04	-.20	-.03	.24	.03
3				.19	.27*	-.10	.10	.02	-.02	.11
4					.26	.46**	-.24	.07	.43**	.13
5						.42**	-.26	.23	.06	.45**
6							-.24	.21	.33*	.18
7								.01	-.41**	-.06
8									-.10	.44**
9										.07
10										

1 Auditory Reception

6 Visual Association

2 Visual Reception

7 Visual Closure

3 Visual Sequential Memory

8 Verbal Expression

4 Auditory Association

9 Grammatic Closure

5 Auditory Sequential Memory

10 Manual Expression

\* .05

\*\* .01

\*\*\* .001



Sequential Memory subtest (.001 level of significance). In the case of the last six subtests, the isolate sample means were higher than those of the normative population.

The null hypothesis was supported in the tests of the mean differences of the Verbal Expression subtest, the Grammatic Closure subtest, and the Visual Closure subtest.

The computation of analysis of variance and the Newman-Keuls  $q$  multiple comparison procedure revealed significant difference. These were at the .05 level between the Visual Sequential Memory subtest mean (the largest mean) and the means of the Visual Association, Visual Closure, Verbal Expression, Grammatic Closure, and Auditory Reception subtests. There was also a .05 level of significant difference between the Auditory Reception subtest mean (the lowest mean) and the Visual Memory, Manual Expression, Auditory Memory, Auditory Association, Visual Reception, and Visual Association subtest. There were also significant differences between the Manual Expression subtest mean and the means of the Verbal Expression and Grammatic Closure subtests, and between the Auditory Sequential Memory and Grammatic Closure subtests.

These data suggested that for the isolate sample of this study relatively high communication skill in visual memory and relatively low communication skill in auditory reception were descriptive of the skill pattern.

## Chapter 5

### CONCLUSIONS, RECOMMENDATIONS, AND SUMMARY

#### Introduction

This study sought to describe the communication skills of a sample of third and fourth grade pupils who had been identified as social isolates or highly fringe isolates. Further, comparisons of the means of scaled scores of the subtests of the Illinois Test of Psycholinguistic Abilities of the isolate sample with those of the Illinois Test of Psycholinguistic Abilities normative population were made.

This chapter presents (a) a summary of the study, (b) conclusions relating to the hypotheses, (c) implications of the study, and (d) recommendations for further research.

#### Summary of the Study

The findings of this study indicated that a sample of isolate and highly fringe isolate third and fourth grade elementary school pupils demonstrate relatively high communication skills in visual reception, auditory association, visual association, manual expression, auditory sequential memory and visual sequential memory, as measured by the subtests of the Illinois Test of Psycholinguistic Abilities, when compared to the Illinois Test of Psycholinguistic Abilities normative population. They demonstrate relatively low skills in auditory reception and do not differ from the normative population on the Illinois Test of Psycholinguistic Abilities subtests of verbal expression, grammatical closure, and visual closure.

As articulated in Chapter 1, the purpose of this study was to provide data describing communication skills of an isolate sample. This purpose has been fulfilled. However, the researcher's anticipation that the data would reveal overall communication skill deficiency was not supported. To the contrary, six of the ten sets of skills assessed by the Illinois Test of Psycholinguistic Abilities subtests showed superiority of the isolate sample. Three of the remaining four subtests were not significantly different from the scores of the normative population.

#### The Setting and Selection of Subjects

The setting for this study of communication skills of isolate elementary school pupils was two suburban communities and one exurban community all within one hundred miles of San Francisco, California. Five schools participated in the study. Schools within the districts and classrooms within the schools were selected randomly, except for one school where all the third and fourth grade classrooms were utilized.

The median 1970 family income of the suburban school districts was over \$18,000. The 1970 median income for the exurban district was \$14,700. The districts were, generally, middle class.

#### Procedures

All the pupils in the selected classrooms were given the Georgia Sachs Adams' sociometric survey under supervision. Pupils receiving no or one nomination on the survey were designated isolate and highly fringe isolate, respectively. The researcher personally administered the Illinois Test of Psycholinguistic Abilities to each individual in the sample.

### Conclusions Relating to the Hypotheses

The objective of the study was to identify communication skills of socially isolated and highly fringe isolate elementary school pupils using a sociometric survey and the Illinois Test of Psycholinguistic Abilities. It further sought to compare Illinois Test of Psycholinguistic Abilities subtest scores of the isolate sample with those of the normative population.

#### Hypothesis 1

The mean of the Illinois Test of Psycholinguistic Abilities Auditory Reception subtest scores of the isolate group was significantly lower than the mean of the norm group. It was more than two scaled scores lower, corresponding to the 38th percentile for the normative population. This was despite the fact, discussed in Chapter 3 and below, that the isolate sample may have been drawn from a population not typical of the normative sample in intelligence and certain socioeconomic factors.

#### Hypothesis 2

The mean of the Illinois Test of Psycholinguistic Abilities Visual Reception subtest scores of the isolate group was significantly higher than the mean of the norm group by more than two scaled scores, corresponding to the 61st percentile of the normative population. Five other of the subtests, identified below, also had significant higher means for the isolate sample than for the normative population. As discussed in Chapter 3 and below in Implications of the Study, socioeconomic factors and relatively high intelligence of the isolate sample may have influenced the high subtest scores. Burns (1976a, p. 396; 1976b, p. 286) suggests that "... gifted children probably exhibit greater score dis-

persion than average children. . . ." in a discussion of the effects of restricted sampling, in this case I.Q. restriction of the norming procedures of the Illinois Test of Psycholinguistic Abilities. Newcomer and Hammill (1975, p. 404) stated that high correlation between Illinois Test of Psycholinguistic Abilities scores and reading achievement was due to intelligence. They also stated, "Linguistic measures of this type are often affected by sociological factors. . . ."

~~In addition, 26 of the 40 subjects in the isolate sample were ten years, zero months to ten years, three months of age. This placed them at the top level of chronological age in comparison to the normative population. Chronkrite and Penner suggest that chronological age may be a critical factor in high Illinois Test of Psycholinguistic Abilities scores. In their study they found that "chronological age [accounted] for 91.0 percent of the variance" in subtest scores using a multiple correlation coefficient procedure (Chronkrite and Penner, 1975, p. 515).~~

### Hypothesis 3

The study's findings rejected the hypothesis that the isolate sample auditory association skills did not differ from those of the normative population. The mean of the Illinois Test of Psycholinguistic Abilities Auditory Association subtest scores of the isolate group was higher than the mean of the norm group by more than two scaled scores, corresponding to the 61st percentile of the normative population.

### Hypothesis 4

The study's findings rejected the hypothesis that the isolate sample visual association skills did not differ from those of the normative population. The mean of the Illinois Test of Psycholinguistic Abilities Visual Association subtest scores of the isolate group was

higher than the mean of the norm group. The difference between means was more than one scaled score, corresponding to the 56th percentile of the normative population.

#### Hypothesis 5

The findings of this study supported the hypothesis that the isolate sample verbal expression skills did not differ from those of the normative population. The mean of the Illinois Test of Psycholinguistic Abilities Verbal Expression subtest scores of the isolate group was not significantly different from the mean of the norm group.

#### Hypothesis 6

The findings of this study rejected the hypothesis that the isolate sample manual expression skills did not differ from those of the normative population. The mean of the Illinois Test of Psycholinguistic Abilities Manual Expression subtest scores of the isolate group was higher than the mean of the norm group by more than three scaled scores, corresponding to the 68th percentile of the norm group.

#### Hypothesis 7

The study's findings supported the hypothesis that the isolate sample grammatic closure skills did not differ from those of the normative population. The mean of the Illinois Test of Psycholinguistic Abilities Grammatic Closure subtest scores of the isolate group was not significantly different from the mean of the normative population.

#### Hypothesis 8

The findings of this study rejected the hypothesis that the isolate sample auditory sequential memory skills did not differ from those of the normative population. The mean of the Illinois Test of Psycholin-

guistic Abilities Auditory Sequential Memory subtest scores of the isolate group was higher than the mean of the norm group by more than three scaled scores, corresponding to the 68th percentile of the normative population.

#### Hypothesis 9

The findings of this study rejected the hypothesis that the isolate sample visual sequential memory skills did not differ from those of the normative population. The mean of the Illinois Test of Psycholinguistic Abilities Visual Sequential Memory subtest scores of the isolate group was higher than the mean of the norm group by more than five scaled scores, corresponding to the 78th percentile of the normative population.

#### Hypothesis 10

The study's findings supported the hypothesis that the isolate sample visual closure skills did not differ from those of the normative population. The mean of the Illinois Test of Psycholinguistic Abilities Visual Closure subtest scores of the isolate group was not significantly different from the mean of the norm group.

#### Implications of the Study

Keeping in mind the study's limitations, the conclusions suggest that communication skill deficiency is not characteristic of socially isolated third and fourth grade school pupils in comparison with the normative population. Besides the actual comparisons of Illinois Test of Psycholinguistic Abilities subtest means between the isolate sample and the normative population revealing little support for the communication skill deficiency approach, no pattern of deficiencies could be identified when the subtest scores of the four communication channels

were grouped. In fact, the Visual-Motor channel means of the isolate group were all three superior to those of the norm group. This was, then, the strongest of the isolate group's communication channels. Neither were deficiencies identified when the scores were grouped according to representational and automatic organizational levels.

Two of the lowest means for the isolate group were those of the closure subtests. These were Grammatic Closure, 34.575, and Visual Closure, 36.325. This might be interpreted as a pattern of deficiency, except for the fact that while these were low for the isolate subjects as a group, they did not differ significantly from the normative population.

However, there were significant differences between subtest means within the isolate sample. The highest subtest mean, Visual Sequential Memory, differed from five of the other nine means; and the lowest of the subtest means for the isolate sample, Auditory Reception, differed from six of the other nine means. This supports the conclusion that the isolate sample communication skill profile is characterized by relatively low Auditory Reception skill in comparison to both the normative population and to the other skills measured by the Illinois Test of Psycholinguistic Abilities. Figure 1 summarizes these data.

The results of this study were not supportive of the research literature concerning social isolate elementary pupils. As cited in Chapter 2, the literature would lead one to expect lower than average communication skill since isolates tend to be characterized by lower than average school achievement, emotional instability, and anti-social behavior. However, Bonney (1944, p. 30) stated in comments on the intelligence-popularity relationship, ". . . there must be many exceptions to the



generally positive trend. . . ." He also said that his research in the 1940's did not permit accurate predictions of either "brightness" or "popularity . . . from one measure to the other" (Bonney, 1944, p. 31). Zander and Van Egmond (1957) concurred with Bonney that intelligence was not a determining factor in social interaction. Of course, the linking of intelligence and communication skill has not been positively made in this study.

~~Twenty two of the 40 subjects in the isolate group had composite~~ raw scores that were higher than the upper limits of the Illinois Test of Psycholinguistic Abilities tables as presented in Kirk, et al. (1968, p. 101) of Estimated I.Q. and Composite Psycholinguistic Age (PLA). The estimated I.Q. is based on the correspondence between Illinois Test of Psycholinguistic Abilities composite raw scores and the Stanford-Binet mental ages of the normative group. Kirk and his associates advise judicious use of the I.Q. estimates and urge more research to test validity of such scores. The Composite Psycholinguistic Age (PLA) is derived from the raw scores and is a global score or overall index of psycholinguistic abilities and disabilities. As such it has limitations for use in comparisons of groups because of group differences in variance of scores (Kirk, et al., 1968, p. 94).

These factors may have contributed to the superior means of the isolate group in comparison to the norm group in six of the ten subtests. That is, despite the limitations of the use of the Estimated I.Q. and the PLA, they may suggest that the isolate and norm groups were not comparable. The isolate subjects, as a group, demonstrated some superior psycholinguistic abilities. These conclusions are consistent with a minority of the literature reported in Chapter 2.

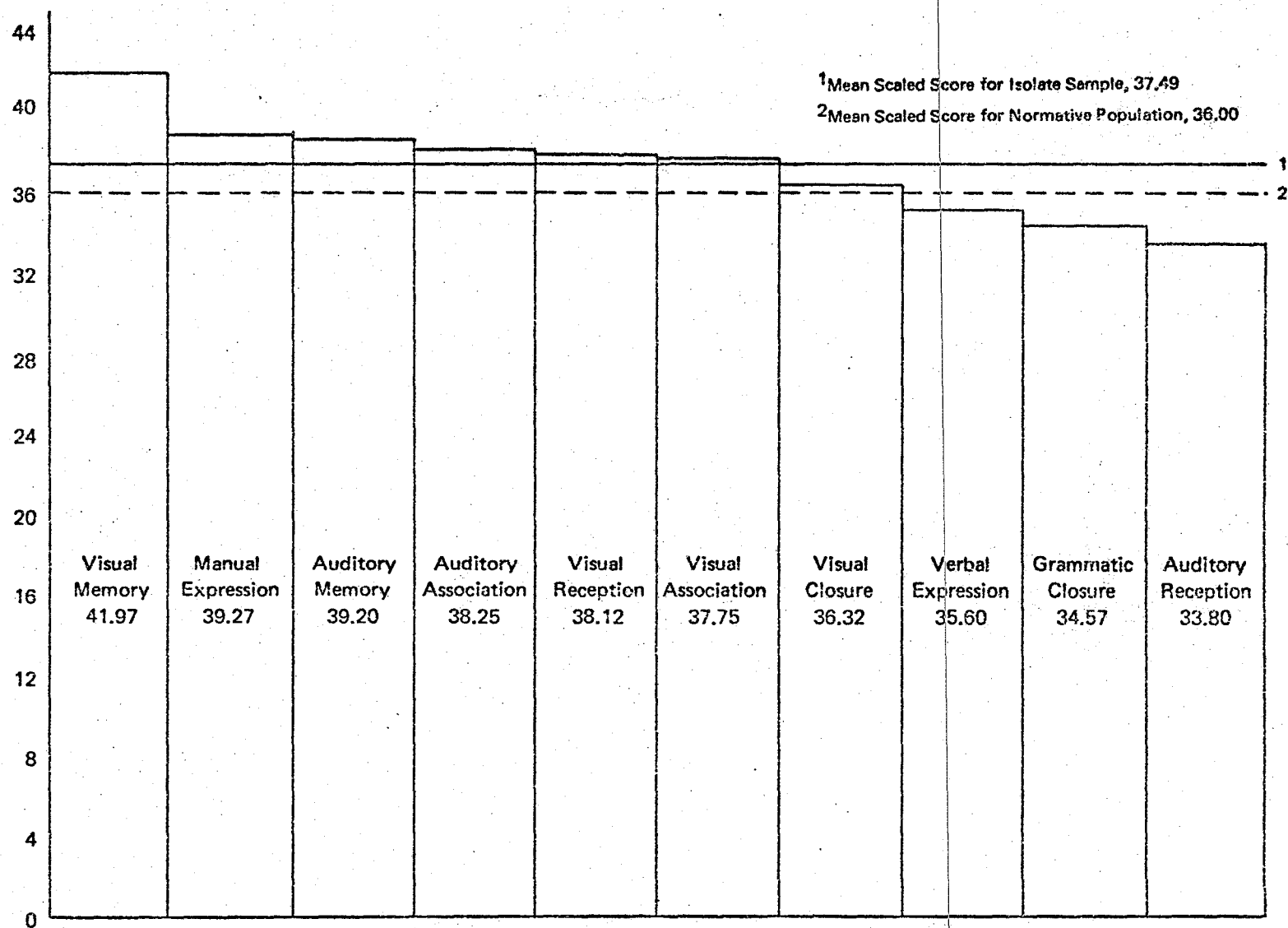


Figure 1. Isolate sample Illinois Test of Psycholinguistic Abilities subtest means compared with the sample Mean Scaled Score and the normative population Mean Scaled Score.

Since the findings of the study do not agree with the majority of the literature, there is the possibility of procedural factors being an influence. The selection of the isolates using the sociometric survey and the administration of the Illinois Test of Psycholinguistic Abilities appear to be the most vulnerable procedural elements to have influenced the study's findings. In addition, the inclusion of highly fringe isolates in the isolate group could have produced a sample not truly representative of socially isolate children. Chance, of course, could have also influenced the findings since there were so few subjects.

The possibility also exists that socially isolate third and fourth grade elementary school pupils possess general communication skill superiority to the non isolate-population, as measured by the Illinois Test of Psycholinguistic Abilities. The researcher does not suggest this since this study is limited by sample size and several demographic factors, as noted in Chapter 3.

#### Recommendations for Further Research

The findings of this study add to the research of Richards (1967), Bonney (1944), Grossman and Wrighter (1948), Laughlin (1954), Jordan (1960), Fox and his associates (1964), and others in the area of the characteristics of the isolate child. They also contribute to the literature of such researchers as Dean (1961), McClosky and Schaar (1965), and Griffin and Groginsky (1970) in regard to the possibility of relationship between communication skill and personal alienation. Since the results of this study also contradict certain aspects of these researchers' conclusions and theoretical perspectives, further research is indicated.

The researcher recommends that further study be done in the following areas:

- a. Research should be conducted to determine if communication skills of isolate pupils change over time.
- b. Experimentation in remediation with communication skill-deficient pupils should be conducted to ascertain its influence on isolation.
- c. Comparison should be made of isolate samples with non-isolate samples chosen from the same demographic population, to provide ~~more comparability than offered by comparisons with normative~~ populations.
- d. Replication should be done of the current study in the area of Auditory Reception. This would provide confirmation for the implication that isolate pupils have deficiency in this area.

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