FACTORS INFLUENCING SUCCESS IN LEARNING TO READ
WITH THE INITIAL TEACHING ALPHABET

A graduate project submitted in partial satisfaction of the requirements for the degree of Master of Arts in
Educational Psychology
by
Victoria Marie Walker

June, 1973
The thesis of Victoria Marie Walker is approved:

California State University, Northridge
June, 1973
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ACKNOWLEDGMENTS

Grateful acknowledgment is given to my graduate advisor, Dr. Philip Hansen, for his advice and concern.

This graduate project is dedicated to my husband, Harry Orin Walker, whose understanding, encouragement and love were instrumental in its completion.
ABSTRACT

FACTORS INFLUENCING SUCCESS IN LEARNING TO READ WITH THE INITIAL TEACHING ALPHABET

by

Victoria Marie Walker

Master of Arts in Education

June, 1973

The purpose of this study was to investigate the influence of eight human variables (I.Q., chronological age, s.e.s., sex, family structure, number of siblings, position among siblings, and instructional group) upon success in learning to read with the initial teaching alphabet. Reading scores of first grade students were trichotomized and the middle third was disregarded in order to polarize subjects. Cumulative records of subjects were reviewed and information relating to the eight variables was recorded. Means and standard deviations were computed for the independent variable of reading achievement and the dependent variables of I.Q., chronological age, and s.e.s. Tests of significance were performed to validate differences between means. Other
dependent variables (sex, family structure, number of siblings, position among siblings, and instructional group) were described statistically and reported according to incidence percentages. Results indicated that those variables which significantly correlated with achievement were: high I.Q., older chronological age, family structure in which the child resides with both natural parents, being middle or youngest child in the family, and being in the instructional group with more mature students. Those variables which did not have an influence upon success in learning to read with i.t.a. were s.e.s., sex, and family size.
CHAPTER I

Introduction

Faced with the challenge of designing effective reading programs, approximately 10 percent of the educators in Great Britain and in the United States have chosen the Initial Teaching Alphabet (i.t.a.) to attain this goal. Developed by Sir James Pitman to aid the neophyte reader in the initial process of deciphering the code of our written language, i.t.a. is purported to simplify the major irregularities of our traditional orthography (t.o.). The consistent grapheme-phoneme relationship of i.t.a. was thought to facilitate mastery of the reading process and afford the child an opportunity to encounter success at an early stage in his academic career (Pitman & St. John, 1969).

There has been much research to discover the educational value of methods of teaching reading with i.t.a. in relation to other methods utilizing t.o.; however, there was a paucity of studies designed to measure human factors influencing success in learning to read with the initial teaching alphabet. Since the inherent value of an educational program rests with its ability to facilitate
learning for the largest number of students, there was a need for conclusive investigations as to those factors which may have a bearing upon achievement in beginning reading with i.t.a.

The factors affecting the learning process have been viewed to be as complex and unique as the individual himself; however, certain commonalities were seen to exist which have value as predictors of reading success. General intelligence in terms of mental age (M.A.) or intelligence quotient (I.Q.) was frequently acknowledged to be highly related to success in beginning reading. Gates (1947) considered that in beginning reading the higher the child's I.Q., the greater probability that he would succeed in learning to read. Children with an I.Q. below 80 experienced great difficulty in learning to read and, as a rule, it took a long time. The group with an I.Q. between 80 and 90 also experienced difficulty and failed more often in learning to read than children with an I.Q. between 90 and 110. "In general, the correlation between success in reading and I.Q. is fairly high [p. 143]."

Lavin (1965) pointed out that success in school required certain cognitive skills, measured to a significant degree by intelligence tests. Strang (1964) discussed the correlation between intelligence test scores and reading achievement and the effect of I.Q. level,
amount and kind of reading instruction, and stage of reading development.

The curves of intelligence and of reading as measured by tests are usually similar for students with IQs of 90 to 110. Students with IQs above 110 who have not been intellectually stimulated often do not read up to their mental capacities, while those with IQs below average, if given special instruction, may read from one-half to two years above their tested intelligence [p. 214].

In a discussion of the characteristics of dull and bright children and the implications for teaching each type, Torgerson and Adams (1954) suggested that children of high intelligence generally were able to grasp generalizations and apply them in new situations without difficulty. Children of average intelligence were able to learn generalizations but required some specific teaching to develop the proper application of generalizations. With children of low intelligence, generalizations were not found to be useful. Although these children were capable of memorizing generalizations, they were not able to make the associations necessary to know when the generalizations should have been applied without specifically being told.

A second predictor of success in reading tended to be that of the child's sex. Heilman (1961), in his review of the literature in the area of sex differences, concluded that the balance of evidence suggested that girls exceeded boys in reading achievement in each of the primary grades.
Several reasons have been advanced for this phenomena. Those mentioned most frequently were immaturity in social, physical, and emotional areas (Harris, 1961; Heilman, 1961).

In a study of 300 schools and 50,000 pupils as a source of data, Stroud and Lindquist (1942) concluded that "girls have maintained a consistent, and on the whole, significant superiority over boys in the subjects tested, save in arithmetic, where small, insignificant differences favor boys [pp. 665-666]."

Wyatt (1966) indicated that although boys as a group tended to lag behind girls in reading achievement in the early years of school, there was evidence to indicate that, as they matured, boys tended to catch up with girls in achievement; however, 75 to 90 percent of children referred to remedial reading clinics for special treatment were boys.

In a discussion of sex differences in relation to predictors of academic performance, Lavin (1965) suggested that the significance of this factor may be understood in terms of a variety of differences in attitudes and behavior which resulted from the fact that males and females socialized differently. In the cultural definition of the male role, academic success was an instrumental goal, having important implications for later career success. If family pressure demanded that the male child do well,
academic success then became directly involved with the male's affective ties to his family. The school, therefore, became either an area of compulsive conformity or rebelliousness from parental expectations. Furthermore, the female teacher's definition of the student role may have included more characteristics of the female sex role. If the model of the good student was a female model, Lavin concluded that "for the male, deviation from the student role constitutes a confirmation of masculinity [p. 131]."

As a predictor of success in reading, the socio-economic status (s.e.s.) becomes a summarizing variable. Lavin (1965) suggested that "social classes differ in terms of behavioral patterns, such as child rearing practices. These patterns, in turn, may be determinants of personality characteristics and values that are related to academic achievement [p. 44]." Further, he stated that "persons of different s.e.s. face different kinds of life situations, and in adapting to them, may develop different sets of values and life styles [p. 123]."

Vernon (1971) noted that reading achievement is "highest in upper socio-economic classes and decreases steadily as the social class declines [p. 95]." She attributed this to differences in intelligence, knowledge, and linguistic competence as well as variations in motivation which stem in part from different types of parent-child relationships occurring more frequently in certain
social classes than others.

Vernon (1969) cited the following environmental factors as contributing to educational achievement:

[1] Reasonable satisfaction of biological and social needs, including exercise and curiosity.

[2] Perceptual and kinaesthetic experience; varied stimulation, encouragement of exploration, experiment and play.

[3] Linguistic stimulation encouraging a "formal code" and clarity of concepts.

[4] "Demanding" but "democratic" family climate, emphasizing internal controls, responsibility, and interest in education.

[5] Conceptual stimulation by varied environment, books, TV, travel, etc.


[8] Regular and prolonged schooling, also demanding-democratic; emphasizing discovery rather than rote learning only.


Thus three factors emerged as basic correlates of academic performance: intelligence, sex, and s.e.s. Theoretically more significant than other variables, these factors also related to performance in reading. Lavin summarized that "ability is directly related to school
performance; females have higher levels of academic achievement than males; and students of high s.e.s. perform at higher levels than students of low s.e.s. [p. 43]."

Other factors which related to achievement in reading as a result of their effect upon the emotional stability of the child, but have not received as wide recognition in the literature were: family structure, number of siblings, and position among siblings. If any disruption (such as divorce or separation of parents) has occurred, the child may be kept in a constant state of uncertainty (Kress, 1964). Hallgren (1950) stated that "broken homes" occurred in 10 percent of the subjects of his investigations of children suffering from specific dyslexia.

Nisbet (1961) pointed out that family size was inversely related to intelligence. This relationship was also noted by Hallgren (1946) and Husén (1950). Anderson and Kelley (1931) reported that the only significant differences between groups of good and poor readers which they could detect was the position the child occupied as regards age in a group of brothers and sisters. The eldest child and the only child tended to be good readers to a greater extent than younger brothers and sisters, thus their hypothesis was validated.

Studies as to the effect of chronological age upon success in beginning reading reported varied results. Carter (1956) noted that underage children had lower
school achievement than children of normal age for the
grade and equivalent ability. In contrast, Stephany (1956)
reported that underage children were superior in achieve-
ment. Miller (1957) discovered little effect of age upon
success in beginning reading.

Purpose of the Study

The following study was designed to investigate
the influence of eight dependent variables: I.Q., sex,
s.e.s., family structure, number of siblings, position
among siblings, chronological age, and instructional
grouping upon success in beginning reading with the initial
teaching alphabet.

Delimitations

Socioeconomic status. S.e.s. was defined as the
ranking of the father's occupation by means of the Reiss
(1961) socioeconomic index.

Intelligence quotient. I.Q. was based upon the
child's performance on the Otis-Lennon Intelligence Test.

Family structure. This variable was defined as
the relationship of the child to the parents living in the
home (natural, stepparent, legal guardian or adoptive) and
the number of parents living in the home.

Number of siblings. This variable was defined to
include all brothers and sisters (natural, stepbrothers
and stepsisters, and half-brothers and half-sisters).
Position among siblings. This factor was sub-ordered into three categories: eldest, middle, and youngest.

Instructional grouping. This component referred to the basis upon which the subjects had been assigned to their first grade class.

Chronological age. The chronological age of subjects was reported in whole months.

Success in reading. This independent variable was determined to be those students whose reading scores on the Cooperative Primary Reading Test placed them in either the upper- or lower-third of the study population.

Initial teaching alphabet. The school used in this study employed a special teaching alphabet as an alternative instructional medium to traditional orthography. Consisting of 44 characters, i.t.a. provided a symbol for each common phoneme of the English language so that the child might "sound out" each word. There were no capital letters since they offered a variation in appearance of the grapheme.

Hypothesis

This study was designed to describe human factors associated with students who were successful in using the initial teaching alphabet and with students who were unsuccessful in using the initial teaching alphabet. The
study, therefore, was not amenable to an a priori statement of hypothesis.
CHAPTER II

Review of Related Literature

Among the major studies of the effectiveness of i.t.a., many investigators have chosen to utilize matched pairs on the basis of intelligence, sex, and s.e.s. to conduct their studies; however, little attention has been given to the influence of these factors upon success in reading. The bulk of research in Great Britain was conducted over a six-year period by Downing (1964) and the Reading Research Unit under the auspices of the University of London Institute of Education. In the first year of i.t.a. experiments, Downing noted that the "young children born in 1956 are superior to the very young born in 1957 in reading traditional print (P < .001): However . . . the difference disappeared; in the i.t.a. class the progress of the very young was not inferior to that of the older children, born a year earlier [p. 31]."

In an attempt to determine whether i.t.a. would benefit those students who would achieve well with existing methods, Downing (1967) presented graphs to show how i.t.a. and t.o. results compared for 10 ranges of achievement. At the end of the first school year, i.t.a.
appeared to have produced improvements in progress through the basal reading series for the above average and highest achieving pupils. By the end of the second year of school the lowest achieving segment of the i.t.a. group was demonstrating superiority over the corresponding section of the t.o. group; however, i.t.a. did not produce improved progress among the lowest 10 percent of the subjects.

In an evaluation of Downing's presentation of the experimental results for the i.t.a. symposium of 1967, Burt (1967) suggested that "there is strong evidence to show that it [i.t.a.] possesses marked advantages for pupils of certain types . . . for the audiles and the motiles and particularly for those of superior intelligence [pp. 107-108]." Several other evaluators, including Gulliford (1967), Morgan and Proctor (1967), Reid (1967), and Vernon (1967) designated a need to examine i.t.a. in the context of individual studies of children's learning.

Other British studies have given cursory treatment to factors influencing achievement with i.t.a. Dell (1967) noted that the Reading and Matrices (intelligence) Scores were highly correlated in the i.t.a. group, suggesting that a close association existed between learning to read and general ability. However, Milne (1966) reported that i.t.a. script appeared to have helped the lowest I.Q. group. Swales (1966), in a study of the interaction between the i.t.a. medium and intelligence level of his
subjects, discovered no significant difference.

As in Great Britain, American studies under the auspices of the United States Office of Education (USOE) have been more concerned with the effectiveness of i.t.a. than discovering variables influencing success with the medium. A few definitive pieces of research do exist, however, to investigate this problem. Hahn (1966) suggested that "one of the goals of education is to assist each person in making the best use of the capacity he possesses [p. 593]." He designed his research to discover the relationship of various factors to achievement for three different reading approaches (among them being i.t.a.). He found that the stronger relationship between achievement and intelligence existed for the i.t.a. group and that boys lagged behind girls in reading achievement; s.e.s. was not found to be significantly correlated.

In evaluating factors affecting learning to read with two whole-word and two phonic (including i.t.a.) approaches, Hayes (1966) discovered that an eclectic basal reader provided an effective program for the students in the lowest I.Q. ranges and an intensive phonetic program, such as i.t.a., challenged pupils in the higher I.Q. ranges to much higher achievement.

In a comparison of three first grade reading instructional methods (including i.t.a.), Fry (1965) discovered a significant difference between mean reading
achievement scores at an .01 level of confidence favoring girls and determined that brighter children learn to read better \( (P < .01) \). The effect for sex, however, disappeared within the latter group. The results at the end of second grade were reported by Fry (1966) and indicated no significant interaction between media and intelligence or sex.

Shohen (1967) reported that i.t.a. appeared to be best suited for above average children. In contrast, Tanyzer and Alpert (1966) found that sex and intelligence were not major factors in distinguishing probable chances for success; however, girls achieved a higher mean score than boys on spelling and paragraph meaning subtests \( (P < .05) \).

Although major British and American investigators achieved careful matching of intelligence, sex, and I.Q. of subjects in experimental studies to determine the effectiveness of i.t.a., little attention has been given to the influence of these and other critical variables upon achievement in beginning reading with this medium.

The present study was conducted to determine the significance of eight variables (I.Q., sex, s.e.s., family structure, number of siblings, position among siblings, instructional grouping, and chronological age) upon success in learning to read with i.t.a.

Evidence from research suggested that correlates of academic performance were high I.Q., high s.e.s., and
and being a female child who resided with both natural parents and was the eldest of two or three children, or an only child.

Studies in the i.t.a. medium were less conclusive, yet brighter children and girls were shown to do better in some investigations. In a discussion of Downing's presentation at the International Reading Association Conference in 1968, "The Nature and Function of I.T.A. in Beginning Reading," Ladd (1968) commented that we have:

... much to learn from the apparent success of i.t.a. Although all children do not succeed in learning to read easily with i.t.a., a sufficient number have had a degree of initial success which requires careful study to determine critical variables. We need an assessment of the uniqueness of i.t.a. in light of our long term goal of producing adults who read and enjoy reading [p. 179].
CHAPTER III

Procedures

This study was conducted to determine the influence of eight variables (I.Q., sex, s.e.s., chronological age, family structure, number of siblings, position among siblings, and instructional grouping) which may have a bearing upon success in learning to read with the initial teaching alphabet.

Subjects

Subjects for the study were 72 first grade students from one elementary school in Ventura County, California. Each of the subjects had received initial reading instruction utilizing the i.t.a. medium. The subjects were ranked by means of their grade level performance on the Cooperative Primary Reading Test, a State of California mandated test administrated in the ninth month of the school year. After trichotomizing the subjects, the middle group was disregarded to polarize subjects. Study groups consisted of 24 subjects each.

Data Collection

After receiving permission from the superintendent of the district as well as the principal of the school
involved, the cumulative records of the students in the study were reviewed. Information was recorded as to the chronological age (in months) of the subjects at the time of testing; the I.Q. (as determined by the Otis-Lennon Intelligence Test, also a State of California mandated test administered in the ninth month of the school year); the sex of the subjects; the s.e.s., as determined by the father's occupation and assigned a number value based upon the Reiss (1961) socioeconomic index. Numerical equivalences were established for the variable of family structure. The complete coding format may be examined in the Appendix. The number of siblings in the family were assigned a numerical value as follows: (1) eldest, (2) middle, and (3) youngest. The classes from which the subjects for the study were selected had been grouped in a quasi-heterogeneous manner based upon kindergarten performance and the children had been subjectively ranked according to maturity, demonstrated ability and readiness score on the Metropolitan Readiness Test. Students were subordered by deciles on the basis of this criteria and the first group was the highest. Thus, Group One consisted of the first, third, and fifth deciles. Group Two was composed of the second, fourth, and sixth deciles, and Group Three consisted of the lowest 20 students.

All data were collected and treated by the author.
Data Processing and Analysis

Means and standard deviations were computed for the independent variable of i.t.a. reading success and the dependent variables of I.Q., chronological age (in months) and s.e.s. Descriptive findings were subjected to t-test analysis to test the significance of the difference between means. Other dependent variables (sex, family structure, number of siblings, position among siblings, and instructional group) were described statistically and reported according to incidence percentages.
CHAPTER IV

Findings

To determine the influence of human variables upon success in learning to read with the initial teaching alphabet, means and standard deviations were computed for the high and low i.t.a. groups reading grade level, I.Q., chronological age, and s.e.s. A test of the significance of the differences between means was applied in order to determine whether or not the groups were statistically different from each other.

Table 1 indicates a mean reading grade level of 3.0542 for the high group (S.D. 4.128) while the low group achieved a mean reading grade level of 1.9792 (S.D. 2.654). The mean I.Q. level of the high group was 112.917 (S.D. 10.304) while the low group mean was an I.Q. level of 106.042 (S.D. 9.910). The mean chronological age of the high group was 86.458 months (S.D. 4.021) and the mean chronological age of the low group was 82.667 months (S.D. 3.358). The mean s.e.s. for the high group was 57.833 (S.D. 26.529) and the mean s.e.s. for the low group was 59.750 (22.353).

Results of t-tests of significance (Table 2)
<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Maximum</th>
<th>Minimum</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reading Grade Level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High i.t.a.</td>
<td>3.0542</td>
<td>4.128</td>
<td>4.1</td>
<td>2.5</td>
<td>16</td>
</tr>
<tr>
<td>Low i.t.a.</td>
<td>1.9792</td>
<td>2.654</td>
<td>2.2</td>
<td>1.0</td>
<td>12</td>
</tr>
<tr>
<td><strong>I.Q.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High i.t.a.</td>
<td>112.917</td>
<td>10.304</td>
<td>130</td>
<td>93</td>
<td>39</td>
</tr>
<tr>
<td>Low i.t.a.</td>
<td>106.042</td>
<td>9.910</td>
<td>129</td>
<td>82</td>
<td>47</td>
</tr>
<tr>
<td><strong>Chronological Age</strong> (in months)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High i.t.a.</td>
<td>86.458</td>
<td>4.021</td>
<td>93</td>
<td>78</td>
<td>15</td>
</tr>
<tr>
<td>Low i.t.a.</td>
<td>82.667</td>
<td>3.358</td>
<td>90</td>
<td>78</td>
<td>12</td>
</tr>
<tr>
<td><strong>S.E.S.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High i.t.a.</td>
<td>57.833</td>
<td>26.529</td>
<td>87</td>
<td>19</td>
<td>68</td>
</tr>
<tr>
<td>Low i.t.a.</td>
<td>59.750</td>
<td>22.353</td>
<td>87</td>
<td>16</td>
<td>.71</td>
</tr>
</tbody>
</table>
**TABLE 2**

Summary of Results of t-tests of Significance for Comparison Groups

<table>
<thead>
<tr>
<th>Comparison Group</th>
<th>Test Value</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Grade Level</td>
<td>2.02100</td>
<td>10.731385</td>
<td>&lt; .05*</td>
</tr>
<tr>
<td>Mental Ability (I.Q.)</td>
<td>2.01400</td>
<td>2.355899</td>
<td>&lt; .05*</td>
</tr>
<tr>
<td>Chronological Age (in months)</td>
<td>2.01400</td>
<td>3.414168</td>
<td>&lt; .05*</td>
</tr>
<tr>
<td>S.E.S.</td>
<td>2.01400</td>
<td>- .270666</td>
<td>&gt; .05**</td>
</tr>
</tbody>
</table>

*null hypothesis rejected
**null hypothesis not rejected

indicated that the reading grade level of the high group was significantly better than that of the low group (< .05); however, it was noted that the low group was reading at grade level performance (1.9) at the time of testing. The I.Q. of the high group was significantly higher than that of the low group (< .05) and the difference in chronological age was significant (< .05) with the high group having the older children. Other dependent variables (sex, family structure, number of siblings, position among siblings, and instructional group) were described statistically and reported according to incidence percentages.
### TABLE 3
**Distribution of Sex of Sample Population (N=48)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Girls</th>
<th></th>
<th>Boys</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>High i.t.a.</td>
<td>12</td>
<td>50</td>
<td>12</td>
<td>50</td>
</tr>
<tr>
<td>Low i.t.a.</td>
<td>13</td>
<td>54</td>
<td>11</td>
<td>46</td>
</tr>
</tbody>
</table>

In the high group, 50 percent were girls and 50 percent were boys. In the low group, 54 percent were girls and 46 percent were boys (Table 3).

All but one child in the high group (see Table 4) were living with both natural parents and that child was adopted. The family structure of those subjects in the low group was distributed as follows: 84 percent were living with both natural parents; 8 percent were living with the natural mother and a stepfather; 4 percent were living with one parent, the father; and 4 percent were living with a guardian. Thus, family structure in the low group showed greater variability than that of the high group.

In the high group (see Table 5), 42 percent had one sibling, 17 percent had two siblings, 21 percent had three siblings, 8 percent had four siblings, and 12 percent had five siblings. The results for the low group indicated that 21 percent had no siblings, 17 percent had one sibling, 25 percent had two siblings, 25 percent had
TABLE 4
Comparison of Sample Students (N=48) Family Structure

<table>
<thead>
<tr>
<th>Group</th>
<th>Both Parents</th>
<th>Natural Father</th>
<th>Stepmother</th>
<th>Natural Mother</th>
<th>Stepfather</th>
<th>One Parent Father</th>
<th>Mother</th>
<th>Guardian</th>
<th>Adopted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>High i.t.a.</td>
<td>23</td>
<td>96</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Low i.t.a.</td>
<td>20</td>
<td>84</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>8</td>
<td>1</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Group</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
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<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N %</td>
<td>N %</td>
<td>N %</td>
<td>N %</td>
<td>N %</td>
<td>N %</td>
<td>N %</td>
<td>N %</td>
<td></td>
</tr>
<tr>
<td>High i.t.a.</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>42</td>
<td>4</td>
<td>17</td>
<td>5</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Low i.t.a.</td>
<td>5</td>
<td>21</td>
<td>4</td>
<td>17</td>
<td>6</td>
<td>25</td>
<td>6</td>
<td>25</td>
<td></td>
</tr>
</tbody>
</table>
three siblings, 8 percent had four siblings, and 4 percent had seven siblings. The most apparent variation in sibling placement was that 21 percent in the low group had no siblings.

### TABLE 6

**Distribution of Position in Family of Sample Population**

<table>
<thead>
<tr>
<th>Group</th>
<th>Eldest</th>
<th>Middle</th>
<th>Youngest</th>
<th>Only Child</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>High i.t.a.</td>
<td>4</td>
<td>16</td>
<td>10</td>
<td>42</td>
</tr>
<tr>
<td>Low i.t.a.</td>
<td>5</td>
<td>21</td>
<td>8</td>
<td>33</td>
</tr>
</tbody>
</table>

Table 6 shows the position among siblings in the high group as 16 percent being eldest, 42 percent middle, and 42 percent youngest. In the low group, 21 percent were eldest, 33 percent were middle, and 25 percent were youngest as well as 21 percent being only children.

### TABLE 7

**Comparison of Instructional Group of Sample Population (N=48)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>High i.t.a.</td>
<td>14</td>
<td>58</td>
<td>7</td>
</tr>
<tr>
<td>Low i.t.a.</td>
<td>2</td>
<td>8</td>
<td>15</td>
</tr>
</tbody>
</table>
The distribution among instructional groups was reported as follows (Table 7). From the high group, 58 percent were in Group 1, 29 percent were from Group 2, and 13 percent were from Group 3. The low group consisted of 8 percent from Group 1, 63 percent from Group 2, and 29 percent from Group 3.

In this study, to determine the factors influencing success in learning to read with the initial teaching alphabet, significant differences between means of the high and low groups were shown to exist for the independent variable of reading grade level and the dependent variables of I.Q. and chronological age. The difference between means of the high and low groups for the dependent variable of s.e.s. was not found to be significant. Other dependent variables were reported according to incidence percentages and indicated that most of the subjects in the high group were living with both natural parents, had from one to three siblings, were middle children or the youngest, and were in instructional Group 1. In contrast, the subjects in the low group showed a greater variability in family structure, had from zero to three siblings, were middle, youngest, or only children and were in instructional Group 2.
CHAPTER V

Discussion and Summary

The purpose of this study was to investigate the influence of eight human variables (I.Q., chronological age, s.e.s., sex, family structure, number of siblings, position among siblings, and instructional group) upon success in learning to read with the initial teaching alphabet. Reading scores of first grade students were trichotomized and the middle third was disregarded in order to polarize subjects. Cumulative records of subjects were reviewed and information relating to the eight variables was recorded. Means and standard deviations were computed for the independent variable of reading achievement and the dependent variables of I.Q., chronological age, and s.e.s. Tests of significance were performed to validate differences between means. Other dependent variables (sex, family structure, number of siblings, position among siblings, and instructional group) were described statistically and reported according to incidence percentages.

Interpretation of findings resulted in the following conclusions and implications regarding the influence
of eight dependent variables upon success in learning to read with i.t.a.

I.Q. Since subjects with a higher I.Q. did significantly better, this study lent credence to the long list of research studies of the significance of this variable: Downing (1967), Dell (1967), Hahn (1966), Hayes (1966), Fry (1965), and Shohen (1967). In contrast to these findings, Swales (1966), Fry (1966), and Tanyzer and Alpert (1966) found no significant difference between the i.t.a. medium and intelligence while Milne (1966) reported that i.t.a. appeared to have helped the lowest I.Q. group. The results of this study suggested that i.t.a. might be better suited to the capabilities of brighter children.

Chronological age. The significant difference in chronological age contrasted with Downing (1964) who found that there was no difference between age groups in the i.t.a. classes. In this study older children did significantly better suggesting that i.t.a. might not be as effective for early instruction in reading; however, it is postulated that maturational level may have influenced the results (further analysis may be found in discussion of instructional groups).

S.e.s. The difference between means for the s.e.s. of the high group and that of the low group was not found to be significant, supporting the work of Hahn (1966). Thus it may be postulated that i.t.a. may be effective as
a beginning reading program at many levels of socioeconomic status (see Table 1—maximum, minimum, range); however, as Lavin (1965) suggested, s.e.s. is a summarizing variable. Thus, even though a range of s.e.s. existed, the proximity of the homes of the subjects (within the district of one school) might have influenced a cross-cultural exchange of behavior regarding those factors in which s.e.s. may have been a determining element (e.g. attitude of parents toward school number of books in the home, etc.).

Sex. The equal distribution of sexes in the high group and the slight variation in the low group refuted the work of Hahn (1966) and Fry (1966), but supported Tanyzer and Alpert (1966) and Fry (1965) who found that sex was not a major factor in distinguishing probable chances for success in learning to read with i.t.a. Since the sex of subjects was almost evenly distributed in the high and low groups, it may be inferred that this was not an influencing variable upon success, suggesting that boys and girls do equally well with this medium.

Family structure. All subjects in the high group (except one) were living with both natural parents, while more variations in family structure existed in the low group, suggesting the influence of instabilities in the home (such as divorce, death of a parent, or living with a guardian) upon success in learning to read with i.t.a. Thus, this study was supportive to the work of Hallgren
(1950) who found that "broken homes" occurred in 10 percent of the subjects of his investigation.

**Number of siblings.** The size of the family did not appear to influence success in reading (except for the interesting element that 21 percent of the low group were only children), since 80 percent of the high group (see Table 5) had from one to three siblings, while the low group was similar with 88 percent (Table 5) having from zero to three siblings. This does not appear to support Nisbet (1961), Hallgren (1946), and Husén (1950) who reported that family size was inversely related to intelligence.

**Position among siblings.** Although no studies of this variable in the i.t.a. medium were found, Anderson and Kelley (1931) indicated that the eldest and the only child tended to be better readers than younger brothers and sisters which was a definite contrast to the results of this study. Those in the high group were almost equally distributed between the middle and the youngest child while the lows demonstrated greater variety and a significant number of only children. Generally, older and only children demonstrated a higher degree of self-confidence than their younger siblings as a result of family responsibilities, hence, they did better in school. Since the middle and youngest children did better in this study, it may be postulated that the structure and internal
consistency of the initial teaching alphabet may promote confidence and provide structure for children who are normally unable to achieve this capacity through their position in the family.

**Instructional group.** Previous to this investigation, the subjects of this study had been placed in a quasi-heterogeneous instructional group (with Group 3 being homogeneous) on the basis of maturation as well demonstrated ability. The group with the highest maturation level (Group 1) also had the highest percentage of successful readers, while the group of 20 immature children had the lowest percentage of successful readers. An interesting dichotomy existed in that the highest percent of low readers were in the group which contained the second decile of ability (Group 2), suggesting the possibility of intervening variables such as parent attitude toward i.t.a. or variations in cognitive style.

The findings with regard to the variables of position among siblings and instructional group suggest implications for further research. Generally older and only children do better in reading; however, middle and youngest children did better in this study. Since the proponents of i.t.a. indicated that this medium promoted confidence in beginning reading (Downing, 1967; Pitman & St. John, 1969), perhaps, the confidence gained through use of i.t.a. negated the influences of family status.
Studies to investigate the influence of this variable with a larger number of subjects is suggested. Also, further investigations of the influence of the instructional group with regard to teacher and/or parent attitude which may have resulted from grouping, could provide an interesting source of information. Finally, additional factors which were not investigated but in the opinion of the author, may provide significant information as to the variables influencing success in learning to read with i.t.a. are: cognitive styles, parent attitude toward i.t.a., and teacher attitude toward i.t.a.

Evidence from this study to determine the influence of eight human variables upon success in learning to read with the initial teaching alphabet indicated that those variables which significantly correlated with achievement were: high I.Q., older chronological age, family structure in which the child resides with both natural parents, being a middle or youngest child in the family, and being in the instructional group with more mature students. Those variables which did not have an influence upon success in learning to read with i.t.a. were s.e.s., sex, and family size.
REFERENCES
REFERENCES


Dell, G. A. The i.t.a. approach to reading. Glasgow: Education Department, 1967.


Fry, E. B. First grade reading instruction using a diacritical marking system, the initial teaching alphabet and a basal reading system. (USOE Cooperative Research Project No. 2745) New Brunswick: Rutgers University, 1965.


Hahn, H. T. Three approaches to beginning reading instruction—i.t.a., language arts and basic readers. The Reading Teacher, 1966, 19, 590-594.


Miller, V. V. Academic achievement and social adjustment of children young for their grade placement. Elementary School Journal, 1957, 57, 257-263.


APPENDIX

Numerical Equivalences for Family Structure

1. Living with both natural parents
2. Living with natural father and stepmother
3. Living with natural mother and stepfather
4. Living with one parent, the father
5. Living with one parent, the mother
6. Living with a guardian
7. Adopted