DEVELOPMENTAL CHARACTERISTICS OF STUDENTS PARTICIPATING IN COORDINATED VOCATIONAL ACADEMIC EDUCATION PROGRAMS

A THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN CHILD DEVELOPMENT AND FAMILY LIVING IN THE GRADUATE SCHOOL OF THE TEXAS WOMAN'S UNIVERSITY

COLLEGE OF

HOUSEHOLD ARTS AND SCIENCES

BY

JANICE FOSTER TILMA, B. S.

DENTON, TEXAS

AUGUST, 1970

Texas Woman's University

Denton, Texas

May 14 19 70

We hereby recommend that the thesis prepared under our supervision by Janice Foster Tilma entitled DEVELOPMENTAL CHARACTERISTICS OF STUDENTS PARTICIPATING IN COORDINATED VOCATIONAL ACADEMIC EDUCATION PROGRAMS

be accepted as fulfilling this part of the requirements for the Degree of Master of Science

Committee:

Dora R. Tyler
Chairman
Jessie W Bateman
Bernadine Johnson
Nick L Lund

Accepted: T. P. Matheson
Dean of Graduate Studies

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

A C K N O W L E D G M E N T S

The author wishes to express sincere appreciation and gratitude to the following who gave assistance and guidance throughout the investigation:

To Dr. Jessie W. Bateman, Dean of the College of Household Arts and Sciences, for her direction during the author's graduate program and for editing the manuscript;

To Dr. Dora R. Tyer, Professor of Child Development and Family Living, for encouragement and professional assistance throughout the study;

To Dr. Bernadine Johnson, Assistant Professor of Home Economics Education, for suggestions in the development and writing of the study;

To Dr. Nicholas Lund, Assistant Professor of Education, for assistance with the statistical phase of the study; and

To G. L., the author's husband and other family members for encouragement and assistance in making completion of the study possible.

CHAPTER I

I N T R O D U C T I O N

In America, educators are placing emphasis on the slow learners. The public schools in this country have emphasized meeting the needs of children with average and above average abilities. The educational system must also meet the needs of the slow learners if these students are to develop into productive and useful citizens of tomorrow. Of the total population in the United States, Johnson (23) postulated that the lower quartile of intelligence quotients is composed of individuals with various levels of mental retardation. The lowest level, the mentally deficient, comprises 0.5 per cent of the total population; the next level, the mentally handicapped, makes up 4.0 per cent as maintained by Morgan (31). Abraham (1) stated that 15 to 20 per cent of school children are slow learners with an intelligence quotient of 75 to 90. Slow learners are capable of learning, but at a slower rate, and probably with less depth of understanding and retention.

Most educators believe that slow learners are problem children as a result of inferior mental abilities. Johnson (23) noted that the slow learner provides one of the largest

problems for the classroom teacher. In an unselected group of 30 students from a community including all cultural, social, and economic levels, four or five may be slow learners who are unable to keep up with the remainder of the class.

Authorities agree that slow learners should be taught in a regular classroom situation with a curriculum that is adjusted to meet the needs of the pupils. Abraham (1) indicated that there are more similarities between the needs of the slow learners and average children than there are differences. To be a more proficient educator, each teacher should have a better understanding of the slow learner.

In a high school class for slow learners, Goldstein (17) observed that in a sample of 30 students, 36 per cent were of low intelligence, 17 per cent were emotionally disturbed, and 30 per cent were from culturally deprived homes and were attending school irregularly, and 17 per cent had records of delinquency. These 30 students were typical of students enrolled in classes for slow learners. A more intense analysis of student stereotypes revealed that some pupils could be more accurately classified as remedial learners, social deviates, and emotionally maladjusted than as slow learners. Each of these categories presents a unique need; consequently, to adequately deal with such diverse needs in one classroom is impossible. The students will probably drop out of school prior to high school graduation.

Featherstone (14) emphasized the need for all teachers to assist in educating slow learners, since these students constitute 20 per cent of an average classroom.

> If anyone doubts the need of sincere efforts to educate these slow learners, let him consider the fact that twenty out of every hundred pupils chosen at random means at least 4 million for the country as a whole. Then let him ponder the consequences for the general welfare of permitting that number of future adult citizens to grow up illiterate, uncultured and uninitiated in the American way of life. If anyone doubts the soundness of investing a considerable sum in their education, let him try to forecast the consequences of not making that investment, bearing in mind, of course, diminished capacity to produce as well as to consume, but more important, not overlooking the declining zeal for the democratic way of life that invariably accompanies illiteracy and ignorance. Let all who question the wisdom of education for "all the children" remember that America has heretofore provided education for all as a gift from a strong, wealthy, and good people, but rather has become strong, wealthy, and good because education has been provided for all the people.

Ignoring the challenge of gaining a better understanding of the slow learner could indeed be consequential.

Concern for the slow learner is certainly not a new one. For centuries educators have been aware of children who were unable to perform as well as most of their peers. Educators and other authorities persist in doing research on slow learners in an effort to acquire a more adequate knowledge of slow learning children. Consequently research about slow learners may be considered an item of unfinished

business. Barbe (2) contended that although the slow learner has been neglected by most investigators, these students have most certainly been misunderstood.

An understanding of the abilities and limitations of slow learners could enable parents and teachers to cope with and, consequently, to guide and teach more effectively the slow learners. The need exists to explore factors which influence the slow learner. Implications from such research would aid mentors, counselors, and school administrators to more effectively select students in future homemaking classes for slow learners.

REVIEW OF LITERATURE

Intelligence

Intelligence is a term commonly used by educators when referring to students with either a high or low intelligence quotient. Since the term is used frequently, a definition of intelligence appears logical. Stoddard (40) contended that intelligence is the ability to pursue activities which are delineated by difficulty, complexity, abstractness, economy, adaptive to a goal, social values, and the emergence of originals. The author pointed out that intelligence included the ability to concentrate, and to refrain from emotional responses.

The slow learner should not be identified entirely on the basis of his intelligence quotient. Kanner (26) stressed the importance of not relying exclusively upon intelligence tests to determine the ability of slow learners.

> An isolated intelligence quotient gives an incomplete picture and can often be misleading. The active refusals of the negativistic child or the irresponsiveness of the withdrawn child yield a far lower score than is representative of the actual endowment.

Although a slow learner cannot be diagnosed prior to an intelligence test, additional careful observations may reveal slowness in all phases of learning and thus serve to reinforce the findings of intelligence tests. According to the research findings involving intelligence tests, scores for slow learners range from 75 to 90.

Information gathered and collected from several studies conducted in various sections of the country and under different circumstances supports the premise that slow learners with intelligence quotients between 75 and 90 constitute approximately 20 per cent of the population. The Superintendent of the New York City Schools (34) reported that, of the 45,000 pupils enrolled in the academic schools, 43 per cent had an intelligence quotient of 95 or less and 22 per cent had scores of 90 or less; the median score was 103.69. Data from a study by Meade (30) in one New York City high

school noted a median intelligence quotient of 95.2 with 17 per cent of the student body making a score of 85 or below. These percentages of intelligence quotients tend to be typical of the ratio for the entire population in the United States.

The distribution of intelligence quotients in studies by Meade (30) and by the Superintendent of New York City Schools (34) were not only similar to each other but, to the population of this country. The data from the research by Davis and Dollard (10) and West (43) in the early 1940's charted the distribution of individuals residing in both rural and urban areas into six different social class stratifications. The percentage in each classification is quite similar to the distribution of intelligence quotients. The lowest subdivision has approximately 15 to 25 per cent of the sample, which is similar to the percentage of individuals with intelligence quotients below 90. After an investigation of 5,000 pupils ranging in age from 9 to 14 years Eells and others (13) found a positive relationship between the intelligence quotient and the social status of the parents. Keller (28) pointed out that the pupils in the lower socio-economic level in New York City public schools had a mean intelligence quotient of 88.57.

Racial and Cultural Differences

Slow learners tend to come from families of lower socioeconomic levels. Most parents of slow learners are employed in semi-skilled or unskilled occupations. Bledsoe (3) found that, of the 247 students who dropped out of school in a southern town, a higher than expected proportion of the parents were unemployed or had unskilled positions.

Parents in the lower classes tend to give less social stimulation to children than do parents in middle classes. This lack of stimulation by parents has a negative effect on the total adjustment of the child. Curry (9) noted that children of lower intellectual abilities were less able to surmount the effects of deprived social and economic conditions than were children of average abilities. Findings of the investigation by Curry on 360 pupils from three socioeconomic levels further substantiated previous research concerning the effect of the socioeconomic status of parents upon the intelligence quotients of children.

Previous research has given support to the theory that there is a difference between the mean intelligence scores of black and white pupils. Deutsch and Brown (11) maintained that the mean intelligence scores of white children were significantly higher than the mean scores of Negro children even when both groups were from similar socioeconomic

backgrounds. However, the investigator pointed out that there is less difference between the mean intelligence quotients of black and white children when the latter exist under very deprived conditions.

Abraham (1) stressed that the intelligence quotient of slow learners ranges from 75 to 90. However, one must remember that the scores may be inaccurate. A large proportion of the students classified as slow learners are potentially gifted but function as slow learners. These pupils are more accurately classified as underachievers. Curry (9) further substantiated previous research concerning the effect of the socioeconomic status of parents upon the intelligence quotient of the children. John (21) stated that children from middle class families surpass lower class agemates by possessing a larger vocabulary and higher nonverbal intelligence scores. Eells and others (13) investigated the relationship between social status and the scores of intelligence tests for 5,000 white students. The findings indicated a difference of 8 to 23 points between the mean scores of the high and low status groups. These findings give added support to the theory of a positive relationship between the intelligence quotients of the child and the social status of the parents.

Parental Affects

Deutsch and Brown (11), after investigating intellectual differences of Negro and white pupils, concluded that there is a highly significant difference between the mean scores of children from intact families and the mean scores of children from fatherless homes. Children from families that were intact made significantly higher scores than students from fatherless homes. Havighurst (17) stated that 37 per cent of the children from a group of slow learners were from broken homes. Murray and Bloom (32) studied children referred to the Bureau of Child Guidance in New York City, and observed that the children from fatherless homes had significantly lower intelligence quotients than did children from families that were intact.

Havighurst (18) contended that a positive wholesome relationship in families had definite beneficial effects on all children. Parents of slow learners do not usually provide such wholesome relationships. Intact families of slow learners are often blighted by parental disharmony which is characterized by physical violence and neglect of the children. These undesirable characteristics have negative effects on the intellectual development of the children.

Other Factors

Additional factors may influence the intelligence quotient of the slow learners. A positive relationship between the intelligence quotient and the socioeconomic level, as well as a positive relationship between the intelligence quotient and the rate of learning has been exhibited. Johnson (24) presented evidence supporting this positive relationship. The investigation indicated that individuals with intelligence scores of 75 learn at a rate that is three-fourths that of a child with an intelligence quotient of 100. Likewise, the child with an intelligence quotient of 66 will learn at a rate that is two-thirds that of the average child with an intelligence quotient of 100.

Seeley (37) tested students in grades 4 through 12 residing in Bay Shore, New York to acquire information that would aid in developing a program for slow learners. The investigator reported a median intelligence quotient of 91.5 for this sample of slow learners that dropped out of school. The exhibited median intelligence quotient is lower than the national average of 100 for all school children.

Investigators have been interested in the possible effects of the month of birth upon intelligence quotients. Forlano and Ehrlich's research (15) involving 7,897 pupils in New York City confirmed the existence of a trend between

the month of birth and the intelligence quotient. The mean intelligence scores for Spring births were equal to, or surpassed, the mean score for all other seasons. The mean scores for Winter births tended to be the lowest of all seasons.

Physical Traits

The statement that the slow learner is "big or beautiful but dumb" is untrue. Research does not evince this information to be correct. Clemmens (8) found that slow learners are generally less well developed than the average or superior student, although the difference between the two groups is not statistically significant. The students may be larger than the agemates due to the fact that slow learners tend to be older, having failed one or more grades.

Research by Pasmaick and Knobloc (35) pointed out that premature births are associated with children of low intellectual abilities. Premature births tend to be common among low income families. After analyzing the data collected on 20 students that were selected from 500 cases, Jerome (20) concluded that there is some relationship between intellectual retardation and poor physical condition.

After studying 20 students that were achieving one or more years below the present grade, Jerome (20) stated that the physical development of the slow learning students is

average for that age level. After an investigation of the slow learners in New York City, Murray and Bloom (32) further substantiated the theory that slow learners have few physical defects.

Hunt (19) stated that the health and physical development of the slow learner is in the lower portion of the normal range. These students may have a slightly higher incidence of illness or disease. The students would miss class frequently, and thus academic achievement may be adversely affected.

Brain Damage

A valid intelligence test that is free of cultural biases should yield insight into the true abilities of the student. A valid test does not reveal the possibilities of brain damage which has an undeniable effect on the apparent abilities of the students. Frostig and others (16) maintained that children with perceptual problems have difficulty in reading. Low ability in reading is a common characteristic of slow learning children. The investigator concluded that one of the major causes of perceptual disabilities is probably the result of brain damage. Clemmen's study (8) pointed out that students with minimal brain damage are not typically problem children until the age of 11 years. From the age of 11 years to high school graduation, or to the

time that the individual drops out of school, the students with minimal brain damage may be considered a discipline problem.

Academic Adjustment

To do the best job of teaching the slow learner, the teacher must first have a better understanding of the abilities, interests, and limitations of the student. Many of the pedagogical concepts employed to teach the average student must be revised to best instruct the slow learner. These students are one of the largest problems of the classroom teacher. Douglas (12) attempted to summarize possible reasons why slow learners may be discipline problems.

> The most difficult challenge when working among underachievers is the unmotivated disinterested learner who won't comply. Unfortunately, many are regarded as dull or mediocre. The reluctant learner is often a very difficult discipline problem, particularly if he has become an emotionally alienated youngster--a problem for the psychiatrist, pediatrician or psychologist, or at least to the well trained counselor or for the inspiring teacher.

Kaplan (27) affirmed that the slow learner tends to be a discipline problem as the school may have given little attention to the curriculum that best fits the needs of this child. Little attention is usually given by most teachers to the adoption of appropriate methods of instruction for slow learners. Unless the school district encourages social

promotion, these students may fail one or more grades. Thus, by the time the student reaches the upper elementary grades, he may be older than his classmates and oftentimes bored by the areas of instruction. The majority of the slow learners soon learn to hate school; therefore, these students are prone to be absent a great deal of the time. These same slow learners are also inclined to leave school entirely when legally feasible.

Some authorities have presented evidence that a correlation exists between the birth month of the child and academic achievement. The correlation that exists between the birth month and intelligence quotients is quite different from the correlation that has been observed between the month of birth and academic achievement. Most states require that the child be six years old prior to entering the first grade. Children born during the summer months will be allowed to enroll in school a year ahead of the child born the following Fall. Individuals born during the last third of the year will be more mature when starting to school than those born in the Summer. Research by Jinks (21) and by Canady (5) confirmed that students born during the last third of the calendar year receive significantly higher grades on report cards than do pupils born during other trisections of the year.

Academic failure of students is succeeded frequently by dropping out of school. Ineffective teaching practices are apparently precipitating an ever increasing number of academic failures and consequently a crescent number of drop outs. According to the "The First Fifty Years" by the Superintendent of New York City Schools (34) 30 per cent of the students dropped out of school before graduation in 1910. The importance of high school graduation was not as great in 1900 as 59 per cent of the labor force was unskilled according to a National Education Association Research Bulletin (33). However, in 1975 the same report estimated that only 22 per cent of the jobs in the labor force will be unskilled. Reduction of available unskilled positions will prevent most drop outs from securing employment. After studying the records of students who dropped out of school, Bledsoe (3) pointed out that more boys than girls left school. The findings further indicated that students from stable groups were less likely to leave school prior to high school graduation. Consequently, the slow learner and the high school drop out constitute a major problem facing all administrators and teachers.

On the basis of observation of the typical classroom situation, Junnell (25) described the predicament of the slow learner.

> For years we have unwittingly inflicted upon the slow learner a kind of refined cruelty that

> would be exceedingly difficult to improve upon. Where it was once a relatively simple matter to put an end to an intolerable situation by leaving school for the factory or farm, today's social pressures and stringent laws regarding compulsory education and child labor laws allowed him no such avenue of escape.

Social Adjustment

Barbe (2) postulated that the social adjustment of the slow learner may be better than the academic adjustment. Under social circumstances, the child may exhibit leadership while this is often not the case under the academic setting. Witty (43) reported that slow learners are prone to academic failures; as a result of this, students may tend to be insecure. Due to insecurity and a lack of self confidence, the student tends to have the following characteristics: withdrawal, aggression, indifference, lack of interest, nervousness, and marked anxiety. The characteristics of slow learners, as enumerated by Witty tend to describe individuals lacking in social adjustment. In a study of slow learners by Jerome (20), the data revealed that 60 per cent of the students had a low total adjustment, and the remaining 41 per cent were considered to be very low in their social adjustment. After comparing a group of slow learners and a group of average students in New York City, Murray and Bloom (32) reported that slow learners were less likely to be classified as socially well adjusted students. The socially maladjusted

student not only exhibits unsatisfactory behavior toward the school but to society in general.

Havighurst (18) emphasized that the slow learner is two and one-half times more likely to have a police record than other students of the same age. Many slow learners not only cause discipline problems in the classroom, but also constitute a problem to the community. These young offenders are referred to as juvenile delinquents. Lander (29) stated that the Negro juvenile delinquent constitutes 49 per cent of the delinquents in Baltimore, Maryland. Only 20 per cent of the juvenile population in Baltimore is Negro. The findings of this study also indicated that 13 per cent of the delinquents were white boys, 1.86 were white girls, 43.8 per cent were Negro boys, and 10 per cent were Negro girls. These delinquents ranged in age from 10 to 15 years.

Emotional Adjustment

The emotional needs and characteristics of slow learners are not really too different from all other children. However, due to limited intellectual capacities, slow learners have more difficulties making satisfactory emotional adjustment. Consequently, the slow learner may have a greater tendency toward instability.

Clancy and Smitter (6), after studying a group of emotionally disturbed children in a medium sized city, noted that emotional maladjustment is not limited to slow learners; some superior children have emotional problems. The median intelligence quotient of the students in special classes for pupils with emotional problems was 89. A positive relationship existed between dullness and emotional disturbances in this sample. In the research, the author indicated that 21 per cent of the mentally retarded children in special classes were ranked as being emotionally maladjusted, while 42 per cent of the mentally retarded children enrolled in regular classes were regarded as emotionally disturbed. In Santa Barbara County, California, the investigator reported that 16 per cent of the school population was considered to be emotionally disturbed. The ratio of boys to girls in this sample was 5 to 3. Other California counties stated that the percentage of students with emotional problems ranged from 5.0 to 35 per cent. The reasons for the wide variation were not evaluated.

California State Department of Education (4) pointed out the differences between a group of emotionally handicapped children and a group of normal children. Emotionally handicapped children tended to have more of the following characteristics than did normal children:

1) Seriously below average in school achievement,

2) More often sent to the vice-principal several times for disciplinary purposes,

3) Often left school,

4) More often had unexcused absences,

5) More visits to the counselor,

6) More visits to home by welfare workers and attendance officers,

7) More visits to the health office,

8) More contacts with the police,

9) More likely to be assigned to a probation officer,

10) More likely to commit penal or vehicle violations, and

11) More likely to be referred to guidance clinics.

Many of the characteristics of children with emotional problems are similar to the characteristics of children classified as slow learners.

Family Description

The family has a very definite effect on all members; these effects are no less important for the slow learner. Ross (36) stated that slow learners tend to come from larger families than do children with average abilities. Broken homes have a very definite effect on the children in the family. Four-fifths of the children in a study of slow learners by Havighurst (18) were from families in the lowest third of the socioeconomic level of the community. Many of

the families in the lower socioeconomic stratum lived in homes where the father was not present. A study in Southern California by Clancy and Smitter (6) confirmed that 32 per cent of the children in special classes for the emotionally disturbed were from broken homes. Students with emotional problems are more likely to come from broken homes than are average children. Thus, there tends to be a relationship between broken homes and emotional and academic problems.

Parental Occupations

A positive relationship between the socioeconomic level of the family and the academic success of the children in the family has been shown by investigators. As the socio-economic level of the family tends to rise, the academic success of the children in the family tends to increase. Research by Sexton (38) conducted in one of the largest cities in the United States pointed out that children from families with an income of less than $7,000 per year made grades of below C; and the reverse may be true when the family income is above $7,000. As the intelligence quotient of the child tended to increase, the family income was prone to rise. After studying slow learning children in an Eastern city, Seeley (37) stated that 9.0 per cent of the parents of the slow learners were employed in professional or managerial positions as compared with 25 per cent of the parents of

average children. The investigators discovered a correlation between the intelligence quotient of the student and the occupation of the parent. Analysis of the data indicated a positive relationship between the intelligence quotient of the student and the occupation of the father. As the intelligence quotient of the pupil tended to decrease the occupational status of the father tended to diminish. In a study by Clancy and Smitter (6), 23 per cent of the mothers of children in special classes worked on a full time basis, while only 14 per cent of the mothers of the total school population were employed. Wakefield (42) investigated four family background factors of educable mentally retarded children in Los Angeles and Santa Monica, California. The findings reflected a mode annual income for families of slow learners ranged from $4,000 to $6,000 per year. Previous studies concerning the parental occupational status of slow learners indicated a positive relationship between intelligence quotients and the parental occupational status and income.

Summary Characteristics and Causation Factors of Slow Learners

A study of slow learners has yielded several characteristics. Abraham (1) made a concise description of the general characteristics of slow learners: short attention span,

limited creative thinking; short retention time; a combination of apathy, defiance, placidity, with a mingling of sensitivity and excitability; academically retarded; loss or absence of self-confidence; gullibility or submissiveness; unable to do abstract thinking; a limited power of directing oneself; and low levels of initiative.

Having established the characteristics of the slow learner, Abraham (1) attempted to describe the causation factors that may influence the slow learner. Listed were: limitations relating to socioeconomic status; deprivation or difference in culture or language; physical factors as exemplified by sight, hearing, malnutrition, health, and immature development; problems in the family; school related factors; barren or meager educational resources at home or in the community; inconsistencies between abilities, achievement, and emotional problems; health problems resulting in physical or emotional problems; educational pressures too great prior to the teachable moment; and emotional problems caused by one of the above. Causation factors and characteristics of slow learners must be determined before the teacher can implement the program that would best fit the needs of the slow learner.

PURPOSE

The Coordinated Vocational Academic Education program was recently initiated into the educational system of Texas; however, Denton offered this course of study for the first time in the Fall of 1969. The Coordinated Vocational Academic Education program was a course of study for boys and girls at Congress and Strickland Junior High Schools in Denton, Texas. The program was designed for slow learners with an intelligence quotient of 75 to 90. These students are considered to be potential drop-outs. The students participating in this first class were selected by teachers who thought that the students would profit more from vocational education than from the academic program. A large percentage of the students in the first class should not have been selected for many students were chosen primarily on the basis of a poor disciplinary record. To effectively select future class participants, a more complete knowledge of the students is required. The schools are given a few guidelines to use as a basis for selecting the participants. The purposes of the present study were to:

1) Determine the general developmental characteristics of the students participating in a vocational program;

2) Determine the mental abilities of participants;

3) Identify possible brain damaged students in these classes.

CHAPTER II

P R O C E D U R E

The present study was conducted to investigate the developmental characteristics of students participating in the ninth grade Coordinated Vocational Academic Education program. The Coordinated Vocational Academic Education program was offered as a course of study for the first time in the Fall of 1969, at Congress and Strickland Junior High Schools in Denton, Texas. The program was designed for slow learners with an intelligence quotient of 75 to 90. The participants were selected by teachers who though the student would profit from vocational education.

The sample for the study consisted of 68 ninth grade students, 21 were enrolled at Strickland Junior High School. The remaining 47 students were enrolled at Congress Junior High School.

A portion of the needed information was secured through the use of a questionnaire compiled by the author with information secured from the cumulative folder of each student. An instrument, "The Personal and Family Characteristics of Participants," was developed by the investigator to obtain

the following information: personal and academic characteristics and family background information.

The student's intelligence quotient, including both verbal and non-verbal scores as determined on the California Short Form Test of Mental Maturity (7) was obtained from the cumulative folders of the participants. The verbal score measured the subject's ability to recall and understand verbal and numerical concepts. The non-verbal scores assess the student's proficiency at recognizing abstract relationships. The test had been administered by the school counselor during the Fall of 1969.

The Slosson Drawing Coordination Test by Richard L. Slosson (39) was administered to the participants to identify individuals with brain damage or perceptual disorders involving hand-eye coordination. The students were given a brief explanation of the purpose of the test and special instructions for completing the test. The test was administered to 68 students during regular class periods. Research has established the validity of the Slosson Drawing Coordination Test (39) in a normative scale.

Related aspects of the data were found by computing simple correlations between the intelligence quotient, the verbal, non-verbal scores of the California Short Form Test

of Mental Maturity (7) and the scores of the Slosson Drawing Coordination Test (39). Analysis of variance was calculated between the factors of the biographical data and the scores of the California Short-Form Test of Mental Maturity (7) and the Slosson Drawing Coordination Test (39). The t-test and Duncan's New Multiple Range Test were calculated between factors of the biographical data and the intelligence quotient and intelligence quotient percentile. The correlations were tested for significance under a null hypothesis of zero correlation.

A copy of the "Personal and Family Characteristics of Participants" follows.

PERSONAL AND FAMILY CHARACTERISTICS OF PARTICIPANTS

Part I

1. Number of student: _____

2. Name of student: _____

3. Sex: Male____ Female____

4. Race: White_____
Negro_____
Latin American_____

5. Height: _____

6. Weight: _____

7. Days absent from school the first semester: _____

8. Police record: Yes_____ No_____

9. Has the student been suspended or expelled from school?

Yes_____ No_____

10. Birthday of student? _____

11. Slosson Drawing Coordination Test:

Score: _____ Errors: _____

12. California Short-Form Test on Mental Maturity:

Intelligence quotient _____ Verbal_____ Non-verbal_____

Part II

13. Number of children in family: _____

14. Position in family: _____

15. Is the family intact? Yes_____ No_____

16. Occupation of father:

_____

17. Occupation of mother

_____

CHAPTER III

DISCUSSION OF FINDINGS AND PRESENTATION OF THE DATA

The study was designed to investigate the developmental characteristics of 68 ninth grade students enrolled in the Coordinated Vocational Academic Education programs at Congress and Strickland Junior High Schools of Denton, Texas. A questionnaire was developed to obtain personal and academic information and family information. The Slosson Drawing Coordination Test (39) was administered to determine the possibility of brain damage. The scores of the California Short-Form Test of Mental Maturity (7) were secured from the cumulative folders of participants, to determine the mental abilities of students.

CHARACTERISTICS OF PARTICIPANTS AS RELATED TO THE FAMILY

The students enrolled in the Coordinated Vocational Academic Education programs were subjects of the study. In the sample, 39 were males and 29 were females, ranging in age from 14 to 18 years; the mean age was 15.1 years. The age of the girls ranged from 14 to 18 years; the mean age was

15.0 years. The age for the boys ranged from 14 to 17 years. The mean age for boys was 15.2 years.

Only 18 per cent of the boys and 38 per cent of the girls were 14 years of age. Although the mean ages of the two groups were almost identical, two girls were 18 years old. A distribution of the percentages of each age level follows.

Age of Students	Male		Female	
	Number (N=39)	Per cent	Number (N=29)	Per cent
14 years	7	17.9	11	37.9
15 years	22	56.4	11	37.9
16 years and above	10	25.6	7	24.2

White students constituted two-thirds of the sample. The majority of the remaining participants were Negro and only 7.0 per cent were Latin American.

Race of Student	Number (N=68)	Per cent
White	45	66.2
Negro	18	26.5
Latin American	5	7.3

Approximately 77 per cent of the boys were white, 18 per cent were Negro, and the remaining 5.0 per cent were Latin

American. Nearly 53 per cent of the girls were white, 38 per cent were Negro, and 10 per cent were Latin American. As shown below, a high percentage of the girls were from a minority ethnic group while the majority of boys were white.

Race of Student	Male		Female	
	Number (N=39)	Per cent	Number (N=29)	Per cent
White	30	76.9	15	52.7
Negro	7	18.0	11	37.9
Latin American	2	5.1	3	10.4

The month of birth of the participants tended to be evenly distributed throughout the year. A slightly larger percentage of the subjects were born during the third quartile of the year, July to September.

About 21 per cent of the boys and 24 per cent of the girls tended to be overweight. A higher percentage of boys than girls tended to be average in weight. Over half of the participants were considered to be average in weight.

Approximately 85 per cent of the sample was classified as either good or average in physical coordination. Only 13 per cent of the students had poor physical coordination.

The number of children in the families of the participants ranged from 1 to 12 children. The bi-mode number of

children was 4 and 6. The mean number of children in the families of the sample was 4.5, the median was 4.4. The mean number of children for white families was 4.9 and 4.1 for the remaining participants.

Number of Children	Number of Families (N=68)	Per cent
1 child	9	13.2
2 children	7	10.3
3 children	6	8.8
4 children	13	19.2
5 children	8	11.8
6 children	13	19.2
7 children	6	8.8
8 children	2	2.9
9 children	2	2.9
10 children and over	2	2.9

The participants tended to be among the older children in each family. The mode position in the family was the first or oldest child. The mean position in the group was 2.9 while the median was 2.3. Only one participant was below the sixth position while 12 students were from families with seven or more children.

The occupations of the fathers were classified according to the Characteristics of the Population by the United States Department of Commerce (41). The greatest number of fathers held positions of skilled employment. No father was

classified as professional while 6.0 per cent held unskilled position, as shown in Table I.

The Characteristics of the Population (41) by the United States Department of Commerce was used to classify the occupations of the mothers. The largest percentage of mothers, 35 per cent, held positions that were classified as skilled labor. A similar number of mothers, about 34 per cent, did not work outside the home, but were full time homemakers. The distribution of the remaining mothers is shown in Table I.

A few of the students did not reside with both parents. About 12 per cent of the students lived in a family that was not intact. Only six of the fathers and two of the mothers were not residing with these children. Some of the participants lived at the Cumberland Presbyterian Home for Children; these subjects did not live in a typical family situation.

CHARACTERISTICS OF THE PUPIL AT SCHOOL

About one-third of the students were considered by the vice-principals to be discipline problems. Figure 1 points out that 44 per cent of the boys were classified as discipline problems, and 31 per cent of the girls were similarly classified. Over half of the non-white students were discipline

TABLE I

OCCUPATIONAL CLASSIFICATION OF PARENTS OF STUDENTS ENROLLED IN COORDINATED VOCATIONAL ACADEMIC EDUCATION PROGRAMS

Occupation	Father		Mother	
	Number	Per cent	Number	Per cent
Professional	0	0.0	0	0.0
Semi-professional	1	1.5	2	2.9
Business	3	4.4	1	1.5
Farmer	1	1.5	0	0.0
Skilled labor	40	58.8	24	35.3
Semi-skilled labor	11	16.2	12	17.7
Unskilled labor	4	5.9	2	2.9

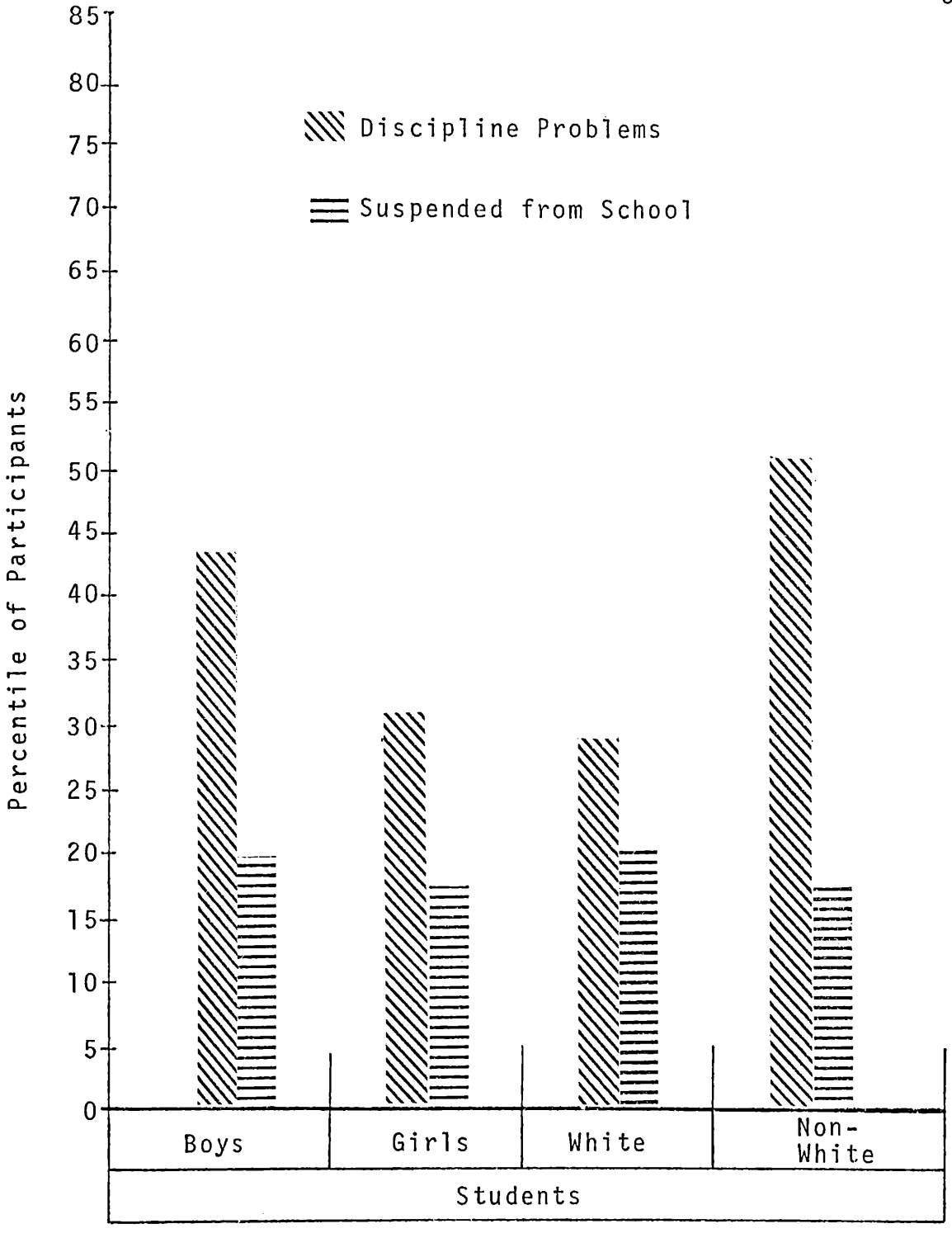

Figure 1

DISTRIBUTION OF DISCIPLINE PROBLEMS OF STUDENTS ENROLLED IN COORDINATED VOCATIONAL ACADEMIC EDUCATION PROGRAMS ACCORDING TO SEX AND RACE

problems. Only one-fourth of the white students were so classified.

Approximately one-fifth of the students had been suspended from school at least one time. Approximately 20 per cent of the white students had been suspended while 17 per cent of the non-white participants had been suspended. Similarly, 21 per cent of the boys and 17 per cent of the girls have been suspended.

The mean number of school days missed during the Fall Semester was 10. The average number of days missed by those students classified as discipline problems was 10.4 and was 9.9 for the remaining students. The average number of days missed by students who had been suspended was 14 and was six for the remaining participants.

Slightly less than two-thirds of the subjects had never been retained to repeat a year of school. The remaining students had failed one or more years; 23.5 per cent had failed one year, 8.8 per cent had failed two years; and 4.4 per cent had failed three years.

TEST RESULTS

The results of the California Short-Form Test of Mental Maturity (7) were collected from the cumulative folder of the participant. The mean intelligence quotient was 68.3. The

mean score for all white pupils was 80.1, and for non-white pupils was 68.0. Eleven subjects, 16.2 per cent, had a score of 0; scores of other subjects ranged from 65 to 114. A bi-modal distribution existed, the modes were scores of 0 and those in the interval from 65 to 69. The remaining distribution of percentages of intelligence quotients follows.

Distribution of Intelligence Quotients	Number (N=68)	Per cent
0	11	16.2
60-64	3	4.4
65-69	11	16.2
70-74	9	13.4
75-79	6	8.8
80-84	8	11.8
85-89	5	7.5
90-94	7	10.5
95-99	6	8.8
100-104	0	0.0
105-109	0	0.0
110-114	1	1.5

The intelligence quotients were ranked in relationship to the local scores. The mean intelligence quotient percentile was 14.4. The range of percentiles for the intelligence quotients was from 1.0 to 75 per cent. The mean percentile for white students was 13.3 and 13.4 for the remaining non-white students.

The second score from the California Short-Form Test of Mental Maturity (7) was the verbal score. Ten participants, 14.7 per cent, had a score of 0; scores of other subjects ranged from 60 to 122. The mean score was 70. The average verbal score for the white participants was 68.7 and 72.6 for non-white students. The mode interval for scores was from 75 to 79 with 22 per cent of the participants. The remaining distribution of verbal scores follows.

Distribution of Verbal Scores	Number (N=68)	Per cent
0	10	14.7
60-64	2	2.9
65-69	7	10.4
70-74	6	8.8
75-79	15	22.1
80-84	12	17.6
85-89	8	11.8
90-94	5	7.3
95-99	2	2.9
100-104	0	0.0
105-109	0	0.0
110-114	0	0.0
115-119	0	0.0
120-124	1	1.5

The verbal scores were ranked in relationship to local scores. The mean percentile for the sample was 15.1. The average percentile for the white students was 15.5 and 14.4 for the non-white subjects. The range of local percentiles was from 1 to 92.

The third score from the California Short-Form Test of Mental Maturity (7) was the non-verbal score. Six students, 8.8 per cent, had a score of 0; scores for the remaining subjects ranged from 56 to 114, with a mean of 77.6. The mean scores for white students was 77.8 and 77.0 for non-white students, as shown below.

Distribution of Non-Verbal Scores	Number (N=68)	Per cent
0	6	8.8
55-59	4	5.9
60-64	1	1.5
65-69	3	4.4
70-74	8	11.8
75-79	8	11.8
80-84	11	16.2
85-89	4	5.9
90-94	10	14.7
95-99	3	4.4
100-104	6	8.8
105-109	2	2.9
110-114	2	2.9

The ranking percentile for the non-verbal scores ranged from 1.0 to 77 per cent. The mean percentile was 20.8 for this sample, 23.0 for white students and 16.3 for the non-white students.

The Slosson Drawing Coordination Test (39) was administered to the participants to determine the probability of brain damage. A score of 85 or below indicated the possibility of brain damage. The scores ranged from 53 to 100,

with a mean of 90.2. The average drawing score for white students was 92.2 and 86.4 for the non-white students. As shown below, approximately one-fifth, 23.4 per cent, of the participants had a score of 85 or below.

Distribution of Drawing Scores	Number (N=68)	Per cent
0	2	3.3
55-59	0	0.0
60-64	2	3.3
65-69	3	4.3
70-74	1	1.3
75-79	5	7.3
80-84	3	4.3
85-89	10	14.3
90-94	9	13.2
95-100	33	48.4

The number of errors on Slosson Drawing Coordination Test (39) ranged from 0.0 to 17 errors. The mean number of errors was 4.4 which gave a score of 90.2. A difference was found by the chi square method between the sex of the student and the corresponding weight. Although the difference appeared to be non-significant, a large proportion of both sexes tended to be of average weight.

Weight	Males	Females
Overweight	8	7
Average	26	15
Underweight	5	7
Total	39	29
$\chi^2 = 5.23$	df = 2	ns

The slow learner tends to have more discipline problems than the average student. The California State Department of Education (4) reported that a higher percentage of the students were discipline problems as one-third of the subjects were so classified. Lander (29) reported that more boys than girls tended to be juvenile delinquents, although the sex of the student had a non-significant effect on the probability of being a discipline problem. This relationship held true for suspension from school.

About 66 per cent of the sample was white and only 26 per cent was black. Approximately 52 per cent of the subjects classified as discipline problems and 30 per cent of the students that were suspended from school were non-white. The race of the subjects appeared to have a non-significant effect on the factors of discipline. This was equally true of being suspended from school, although a trend did exist that more non-white than white students were suspended from school or classified as discipline problems. The study by Lander (29) confirmed that 49 per cent of the juvenile delinquents were black, although the black children constituted only 20 per cent of the juvenile population.

The analysis of variance method was employed to determine the possible effect of race on the scores of the California Short-Form Test of Mental Maturity (7) and the Slosson Drawing Coordination Test (39). Analysis of the data

indicated that there were greater differences within the groups than between the groups; therefore, the test appeared to be non-significant. Table II summarizes the mean scores of the various tests.

The birth month of the participant tended to be evenly distributed throughout the year. The month of birth was found to be non-significant in relation to affecting the scores of Slosson Drawing Coordination Test (39) and the California Short-Form Test of Mental Maturity (7). The intelligence quotient, and verbal scores have a higher mean score during the third quartile of the year, July to September. However, the non-verbal scores and the score of the Slosson Drawing Coordination Test had higher mean scores during the fourth quartile of the year, October to December, as shown in Table III. Forlano and Ehrlich's study (15) found that children born during the Winter had a lower mean score than children born during the other three seasons.

Further analysis was employed to determine the effect of the birth month upon the intelligence quotient. Duncan's New Multiple Range Test indicated that the month of birth had a highly significant effect on the student's intelligence quotient. Children born during the first quartile of the year had a significantly higher intelligence quotient than children born during the second quartile of the year.

TABLE II

MEAN INTELLIGENCE TEST SCORES OF STUDENTS ENROLLED IN COORDINATED VOCATIONAL ACADEMIC EDUCATION PROGRAMS ACCORDING TO RACE

Score	Race	Mean	Standard Deviation	Number
Intelligence quotient	White	80.0	33.49	45
	Non-white	68.0	29.72	23
	Total	68.3	32.05	68
Verbal score	White	68.7	31.35	45
	Non-white	72.6	24.43	23
	Total	70.2	29.19	68
Non-verbal score	White	77.8	31.13	45
	Non-white	77.0	21.11	23
	Total	77.6	27.62	68

TABLE III

MEAN INTELLIGENCE TEST SCORES OF STUDENTS ENROLLED IN COORDINATED VOCATIONAL ACADEMIC EDUCATION PROGRAMS ACCORDING TO MONTH OF BIRTH

Score	Quartile	Mean	Standard Deviation	Number
Intelligence quotient	1	70.3	21.34	15
	2	51.5	36.47	16
	3	74.8	31.95	23
	4	73.4	33.08	14
	Total	68.0	32.04	68
Verbal score	1	72.2	20.77	15
	2	61.9	31.34	16
	3	74.7	31.76	23
	4	69.3	30.98	14
	Total	70.2	29.11	68
Non-verbal score	1	69.0	30.49	15
	2	71.3	30.52	16
	3	82.4	21.61	23
	4	85.9	28.39	14
	Total	77.6	27.62	68

The majority of the participants were considered to be good or average in physical coordination. The research by Jerome (20) and by Murray and Bloom (32) reiterated that slow learners tend to be average in physical coordination. Since the Slosson Drawing Coordination Test (39) was designed to identify brain damage or perceptual problems involving hand-eye coordination, the effect of physical coordination on the drawing test and the intelligence test scores appeared logical. Analysis of variance method showed the level of physical coordination to be non-significant in affecting the scores of the participants on the intelligence test and the drawing test. The highest mean score on the drawing test was made by students with good physical coordination, as shown in Table IV. The t-test was employed to determine the significance of difference between the intelligence quotient of the students with good or average physical coordination. A non-significant difference was observed between the groups, further substantiating the difference between the groups.

The range for the number of children in each family was large, from 1 to 12 children. However, the mean, and median number of white and non-white students, as well as the entire sample was about 4.5. The mean and median position of the participants among siblings was about 2.5, with the mode being the oldest child.

Score	Physical Coordination	Mean	Standard Deviation	Number
Intelligence quotient	Good	71.7	31.27	29
	Average	63.2	33.52	30
	Poor	72.5	30.94	9
	Total	68.1	31.83	68
Verbal score	Good	82.4	22.46	29
	Average	63.3	33.01	30
	Poor	74.9	31.96	9
	Total	73.4	29.06	68
Non-verbal score	Good	80.3	25.01	29
	Average	77.1	24.95	30

The parental occupations of the subjects ranged from semi-professional to unskilled labor, although the most frequent occupational classification was skilled labor for both the father and the mother. Research by Sexton (38), Seeley (37), and Wakefield (42) pointed out that the parents of slow learners tend to be employed in positions that were classified as skilled, semi-skilled or unskilled.

The student with brain damage will have greater difficulty in performing well in a regular classroom situation. These students should be instructed in a class for exceptional children. Therefore, identification of children with brain damage is most imperative. The California Short-Form Test of Mental Maturity (7) was given to all students in the Denton Public School System on alternate years. Should a correlation exist between the scores of the intelligence test and Slosson Drawing Coordination Test (39), then the scores of the intelligence test could be used to identify children with possible brain damage.

Linear correlations were employed to determine possible correlations between the scores of the California Short-Form Test of Mental Maturity (7) and Slosson Drawing Coordination Test (39). A non-significant correlation was observed between the drawing score and the intelligence quotient ($r=.237$), verbal score ($r=.121$) and the verbal percentile ($r=.148$).

A possible correlation significantly greater than zero was found between the drawing score and the non-verbal percentile ($r=.304$, $p<.05$). A significant positive correlation was shown between the intelligence quotient percentile and the drawing score ($r=.341$, $p<.01$). As the intelligence test scores tended to increase, there was a slight tendency for the drawing scores to increase as shown in Figure 2. However, in the case of all three correlations, the relationship is not well defined; in other words, there would be sizable variability in the prediction from one score to another.

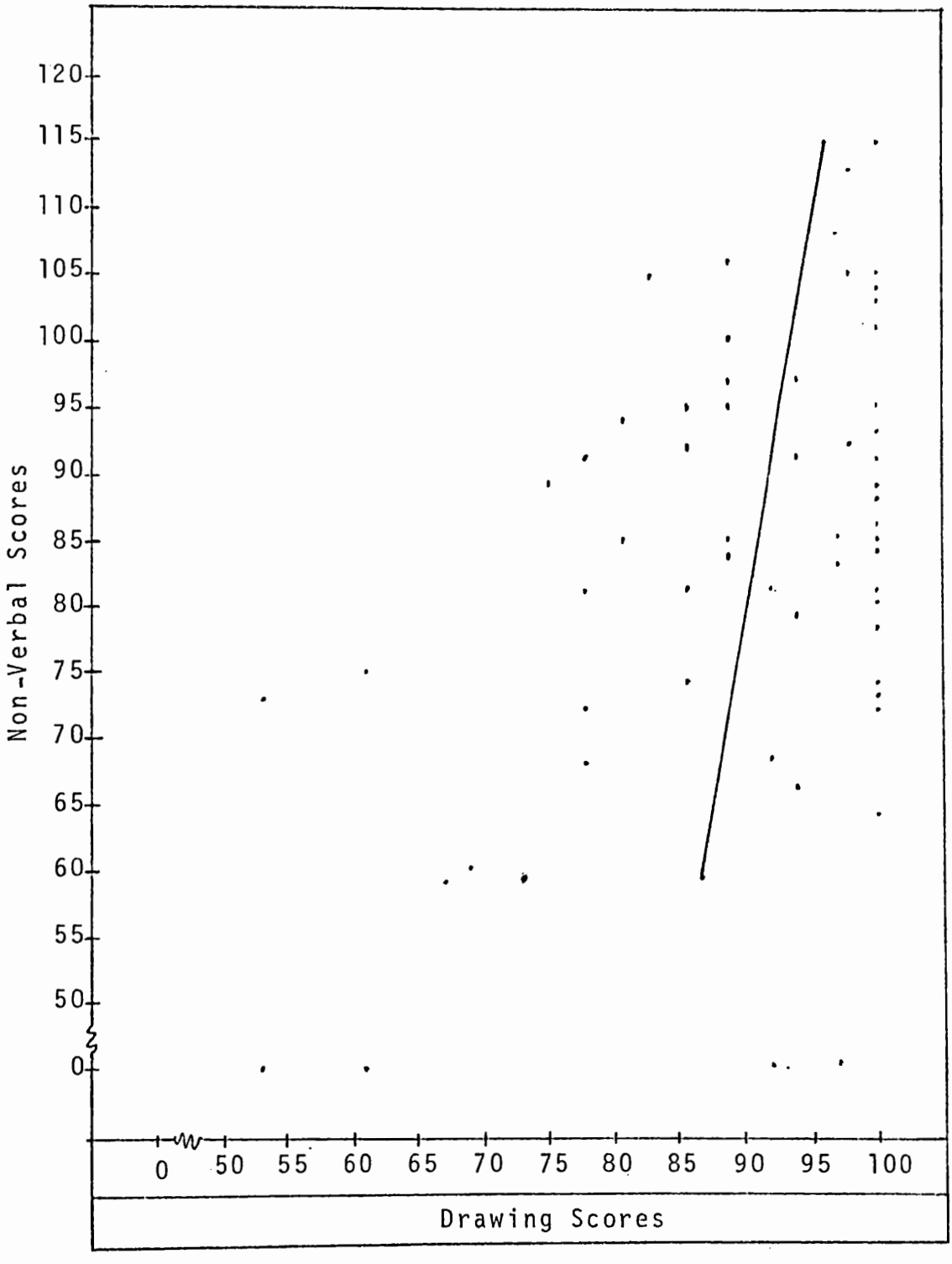

Figure 2

LINEAR REGRESSION OF NON-VERBAL AND DRAWING SCORES OF STUDENTS ENROLLED IN COORDINATED VOCATIONAL ACADEMIC EDUCATION PROGRAMS

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The general purpose of the study was to gain more knowledge of the students participating in the Coordinated Vocational Academic Education program at Congress and Strickland Junior High Schools in Denton, Texas. The specific purposes were to:

1) Determine the general developmental characteristics of the students participating in a vocational program;

2) Determine the mental abilities of the participants; and

3) Identify possible brain damaged children in these classes.

A questionnaire, "The Personal and Family Characteristics of Participants," was designed by the author. The author secured information from the students' cumulative folder. The intelligence quotient, verbal score, and non-verbal scores were obtained on the California Short-Form Test of Mental Maturity (7). The scores were secured from the cumulative folders of the subjects. The Slosson Drawing Coordination Test (39) was administered to the students during regular class periods to identify students with possible brain damage.

SUMMARY

The sample consisted of 39 boys and 29 girls who ranged in age from 14 to 18 years. Two-thirds of the students were white and the remaining participants were Negro and Latin American. The majority of the students tended to be of average weight. The subjects came from families with a mean number of 4.5 children; however, the majority of the students tended to be among the oldest children in each family. The majority of parents were employed in skilled, semi-skilled or unskilled positions. The majority of the subjects were from intact families.

About one-third of the students were discipline problems, although only one-fifth had been suspended from school. The mean number of days missed during the Fall Semester was 10. Two-thirds of the subjects had never been retained to repeat a year of school.

The mean scores obtained from the California Short-Form Test of Mental Maturity (7) were intelligence quotient with a score of 68.3, verbal score with an average of 70.0, and non-verbal score with an average of 77.6. Generally, the white students tended to make higher scores than the non-white students.

The mean score for the Slosson Drawing Coordination Test (39) was 90.2. A score of 85 or below indicated the possibility of brain damage. About one-fifth of the students made scores of 85 or below.

CONCLUSIONS

A large percentage of the students tended to be discipline problems. The sex of the student did not appear to affect the factors of discipline or suspension from school.

No significant difference was observed between the factors of discipline and suspension, and the sex of the student. More non-white than white participants tended to be discipline problems.

The participants tended to be one of the older children in a medium size family. The most frequent classification of parental occupation was skilled labor.

The month of birth appeared to have a non-significant effect on the students' scores of the intelligence test or the drawing test. However, further evaluation revealed the difference between the mean intelligence quotient of the participants born during the first two quartiles of the year to be quite significant. The mean score of the first quartile, January to March, was significantly higher than the mean score of the second quartile, April to June.

The students with good physical coordination made the highest mean score on the drawing test. The students' physical coordination did not appear to affect their scores of the intelligence test or the drawing test.

A non-significant correlation was observed between the drawing score and the intelligence quotient, verbal score, and the verbal percentile. A positive correlation, significantly greater than zero, was found between the drawing score and the non-verbal percentile. A significant positive correlation was shown between the intelligence quotient percentile and the drawing score. A significant positive correlation was found between the drawing score and the verbal score. A very slight relationship was found between the respective scores, consequently a sizable variable appeared to exist between the drawing score and the intelligence test scores. As the scores of the drawing test tended to increase, there was a slight tendency for the intelligence test scores to increase. Sixteen, or 23 per cent, of the subjects were identified as possibly having brain damage.

RECOMMENDATIONS

Further research should be conducted to include a larger sample to determine the developmental characteristics of the slow learners in the vocational homemaking classes.

The sample could include students located in various geographical areas.

In future studies the biographical information could more easily be secured from the students, than from the participants cumulative folder. The questionnaire could be used to collect information about the students' academic and social opinions.

A further study at Texas Woman's University could include the teacher's evaluation of the student's apparent attitude toward academic work; as well as the teacher's evaluation of the student's mental abilities. The study could include two groups, the students enrolled in the Coordinated Vocational Academic Education program and a group of students with similar mental abilities in an effort to observe possible academic differences between the two groups.

LITERATURE CITED

1. Abraham, Willard. The Slow Learner. New York: The Center for Applied Research in Education, Inc., 1954.

2. Barbe, W. B. "Slow Learner, A Plea for Understanding." Education (February, 1961).

3. Bledsoe, J. C. "An Investigation of Six Correlates of Students Withdrawal from High School." Journal of Educational research (1953).

4. California State Department of Education. The Education of Emotionally Handicapped Children. Sacramento, California, March, 1961.

5. Canady, H. G. "The Intelligence of Negro College Students and Parental Occupations." American Journal of Sociology, XLII (1963).

6. Clancy, Norah, and Faith Smitter. "A Study of Emotionally Disturbed Children in Santa Barbara County Schools." California Journal of Educational Research (November, 1953).

7. Clark, Willis W., and Ernest W. Tiegs. California Short-Form Test of Mental Maturity. Monterey, California: California Test Bureau, 1963.

8. Clemmens, Raymond L. "Minimal Brain Damage in Children." Children (September and October, 1961).

9. Curry, R. L. "The Effects of Socio-economic Status on the Scholastic Achievement of Sixth Grade Children." British Journal of Educational Psychology (1962).

10. Davis, Allison, and John Dollard. Children of Bondage: The Personality Development of Negro Youth in the Urban South. American Youth Commission. Washington, D. C.: American Council on Education, 1940.

11. Deutsch, M., and R. Brown. "Social Influences in Negro-White Intelligence Differences." Journal of Social Issues (1964).

12. Douglas, Harl. "Salvaging the Underachiever." The Clearing House (May, 1967).

13. Eells, Kenneth. Intelligence and Cultural Differences. Chicago: University of Chicago Press, 1951.

14. Featherstone, W. B. Teaching the Slow Learner. New York: Bureau of Publications, Teachers College, Columbia University, 1951.

15. Forlano, George and Virginia Zerilla Ehrlich. "Month and Season of Birth in Relation to Intelligence, Introversion, Extroversion and Inferiority Feelings." Journal of Educational Psychology, XXXII (January, 1941).

16. Frostig, Marianna, D. Lefever, and J. R. B. Whittlesey. "Visual Perception in Brain Injured Children." American Journal of Orthopsychiatry (1963).

17. Goldstein, Herbert. "New Direction for the Slow Learner." Education (February, 1961).

18. Havighurst, Robert J. "Dealing With Problem Youth." National Schools (May, 1958).

19. Hunt, J. McVicker. "The Psychological Basis for Using Preschool Enrichment as an Antidote for Cultural Deprivation." Merrill Palmer Quarterly, X (1964).

20. Jerome, Sister Agnes. "Study of 20 Slow Learners." Journal of Educational Research (September, 1959).

21. Jinks, P. C. "An Investigation into the Effect of Date of Birth on Subsequent School Performance." Educational Research, XI (June, 1964).

22. John, Vera P. "The Intellectual Development of Slum Children: Some Preliminary Findings." American Journal of Orthopsychiatry (1963).

23. Johnson, G. Orville. Education for the Slow Learner. Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1963.

24. Johnson, G. Orville. "The Relationship of Learning Rate and Development Rate." Exceptional Children, XXVI (October, 1957).

25. Junell, Joseph S. "The Forgotten Fifth." Education (April, 1961).

26. Kanner, Leo. Child Psychology. Springfield, Illinois: Charles C. Thomas, 1953.

27. Kaplan, Bernard A. "Issues in Educating Culturally Disadvantaged." Phi Delta Kappan, XLV (November, 1963).

28. Keller, Suzanne. "The Social World of the Slum." American Journal of Orthopsychiatry (October, 1963).

29. Lander, Bernard. Towards an Understanding of Juvenile Delinquency: A Study of 8464 Cases of Juvenile Delinquency in Baltimore. New York: Columbia University Press, 1954.

30. Meade, Mary E. "What Program of Education for Slow Learners." National Association of Secondary School Principals (March, 1951).

31. Morgan, Clifford T. Introduction to Psychology. New York: McGraw Hill Book Company, Inc., 1956.

32. Murray, W. I., and I. Bloom. "Characteristics of Slow Learners and Pupils of Normal Intelligence Referred to a Child Guidance Clinic." Journal of Educational Research (October, 1960).

33. National Education Association. "High School Drop-Outs." National Education Association Research Bulletin, XXXVIII (February, 1960).

34. New York City Board of Education. "The First 50 Years." Report of Superintendent of Schools, 1948.

35. Pasamaick, Benjamin, and H. Knobloc. "Environmental Factors Affecting Human Development Before and After Birth." Pediatrics (1960).

36. Ross, Raymond Royal. "A Case Study Description of Underachievers in Arithmetic." College of Education Graduate School, University of Oregon, 1962.

37. Seeley, Glenn Sherman. "That More May Learn: Formulations of a Program to Meet the Needs of Slow Learners in Grades 4 Through 12 of Public Schools in Bay Shore, New York." Columbia University Education Department, 1963.

38. Sexton, Patricia Cayo. Education and Income. New York: The Viking Press, 1961.

39. Slosson, Richard L. Slosson Drawing Coordination Test. East Aurora, New York: Slosson Educational Publications, 1967.

40. Stoddard, George D. The Meaning of Intelligence. New York: The MacMillan Company, Inc., 1943.

41. United States Department of Commerce, Bureau of the Census. Characteristics of the Population, Vol. 9, Part 1. Washington, D. C.: United States Printing Office, 1964.

42. Wakefield, R. A. "Investigation of the Family Backgrounds of Educable Mentally Retarded Children in Special Classes." Exceptional Children (November, 1964).

43. West, James. Plainville, U. S. A. New York: Columbia University Press, 1945.

44. Witty, Paul A. "Needs of Slow Learning Pupils." Education (February, 1961).