

THE RELATIONSHIP BETWEEN ACADEMIC ACHIEVEMENT AND LOCUS OF
CONTROL IN MIDDLE AND LOWER SOCIOECONOMIC LEVEL BLACK,
WHITE, AND MEXICAN-AMERICAN HIGH SCHOOL STUDENTS
IN AN URBAN SCHOOL SETTING

A Dissertation
Presented to
the Faculty of the College of Education
University of Houston

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

by
Ras Roland Friend
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ABSTRACT

Friend, Ras Roland. "The Relationship between Academic Achievement and Locus of Control in Middle and Lower Socioeconomic Level Black, White and Mexican-American High School Students in an Urban School Setting." Unpublished Doctoral Dissertation, University of Houston, December, 1972.

Committee Chairman: Dr. Guy D. Cutting

Problem

The study was designed to determine if a relationship exists, independent of IQ, between academic achievement and locus of control in grades nine, ten and eleven for male and female; middle and lower socioeconomic level; black, white and Mexican-American high school students.

Procedures

Null hypotheses were formulated to test whether partial correlation coefficients between academic achievement and locus of control, with the effects of IQ removed, were significantly different from zero, where groups were formed on the bases of socioeconomic level and ethnic background, socioeconomic level and sex, and sex and ethnic background.

A stratified random sampling technique was utilized in the selection of one-hundred and eighty subjects for the study. There were equal numbers of male and female; middle and lower socioeconomic level; black, white and Mexican-

American subjects.

Subjects' locus of control was determined by the use of the Rotter (1966) I-E Scale; academic achievement was measured by the Stanford Achievement Test; IQ was determined by the use of the Otis-Lennon Mental Ability Test; and socioeconomic level was determined by the use of the Duncan Socioeconomic Index for Occupations.

Findings for the Hypotheses

Partial correlation coefficients were computed between academic achievement test scores and locus of control scores with the relational effects of IQ removed. For each of the hypotheses, the partial correlation coefficients were tested for significant difference from zero at the .05 level and the .01 level of confidence.

The statistical treatment of the data relating to hypotheses 1 through 6 showed that the partial correlation coefficient between academic achievement and locus of control, with the effects of IQ removed, was not significantly different from zero when groups were formed on the bases of socioeconomic level and ethnic background.

The statistical treatment of the data relating to hypotheses 7 through 10 showed that the partial correlation coefficient between academic achievement and locus of control, with the effects of IQ removed, was not significantly

different from zero when groups were formed on the bases of socioeconomic level and sex, except for hypothesis number 9 which dealt with lower socioeconomic level male subjects. In this case, the partial correlation coefficient obtained ($-.387$) was significant at the .01 level of confidence and indicated that internal locus of control was related to higher academic achievement for lower socioeconomic level male subjects. These results are consistent with those reported by Cellura (1963) in an unpublished study cited by Rotter (1966).

The statistical treatment of the data relating to hypotheses 11 through 16 showed that the partial correlation coefficient between academic achievement and locus of control, with the effects of IQ removed, was not significantly different from zero when groups were formed on the bases of ethnic background and sex except for hypothesis number 13 which dealt with Mexican-American male subjects. In this case, the partial correlation coefficient obtained ($-.487$) was significant at the .01 level of confidence and indicated that internal locus of control was related to higher academic achievement for Mexican-American male subjects.

Although only two of the sixteen hypotheses were significant, and all other partial correlation coefficients

were near zero and non-significant, there was a directional tendency. All partial correlation coefficients were positive, indicating a relationship between external locus of control and high academic achievement, for female subjects; and negative, indicating a relationship between internal locus of control and high academic achievement for male subjects.

Conclusions

The basic findings of this study would seem to indicate little if any measured relationship between academic achievement and locus of control. However, before this general conclusion is accepted, several alternative possibilities should be considered.

1. Controlling the IQ, which is so closely related to academic achievement, may have eliminated effect. "IQ scores" on this verbal group test may actually be "academic achievement."

2. The instrument used in the study may not have been sensitive enough to measure degrees of locus of control.

3. The sample used in the study was small and may not have been representative..

4. There may have been other uncontrolled contaminating variables present or possibly there were no actual relationships other than for the two hypotheses noted.

5. There may be a small and weak relationship between academic achievement and locus of control.

6. Significant findings in two groups indicate the possibility of any or all of the above conclusions as a possible explanation of the weak results obtained.

Recommendations

Several questions have arisen from the findings of the study. The following recommendations were considered appropriate:

1. Research needs to be conducted to identify the most effective levels of locus of control for different situations. The importance of internal locus of control has been emphasized in the literature but no information is available about what level of internal locus of control is most effective in what situations.

2. Counseling programs aimed at changing locus of control should be investigated to determine if changes in locus of control are accompanied by changes in achievement.

3. Further research should be conducted to determine the effects of enrichment programs on locus of control and academic achievement.

4. This study should be replicated using larger samples of lower socioeconomic level students and students from minority ethnic backgrounds, where the traditional

IQ test is least effective, to determine if measures of locus of control have a place in the total guidance program.

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Chapter I

Introduction

The performance of the child in the classroom has been a major concern of educators and psychologists for many years (Shaw and Uhl, 1971). Greatest interest has been focused on the cognitive processes of general intellectual functioning and language behavior (Shore, Milgrim and Malasky, 1971). However, with increased emphasis on individualized instruction, the consideration of personality factors has gained importance (Shaw and Uhl, 1971). This study is directed toward investigating the relationship between academic achievement and the personality variable: locus of control.

Locus of control, as set forth by Rotter (1966), is a generalized expectancy which relates to whether or not an individual possesses control over what happens to him. Rotter sets forth two types of locus of control; internal locus of control and external locus of control. Internal locus of control refers to an individual's belief that the occurrence or outcome of an event in which he is involved is a consequence of his personal action and thereby under his personal control. External locus of control, on the other hand, refers to an individual's belief that the occurrence or outcome of an event in which he is involved

is unrelated to his personal action in certain situations and therefore beyond his personal control.

There are some events in life which can be controlled and some which cannot. While most events are, in fact, partially controllable and partially uncontrollable individuals differ in the degree to which they attribute responsibility to themselves for the occurrence or outcome of an event.

Statement of the Problem

The problem was to determine if a relationship existed, independent of IQ, between academic achievement and locus of control in grades nine, ten and eleven for male and female; middle and lower socioeconomic level; black, white and Mexican-American high school students.

Need for the Study

Locus of control has been the object of research in psychology for many years. However, few studies have investigated the relationship between academic achievement and locus of control (Shaw and Uhl, 1971). Most critical decisions which affect educational expectations and social adjustment are currently based upon records of student achievement and standardized test scores (Dunn and Kowitz, 1967). Eichman (1970) said, "educators making predictions based solely on scholastic criteria raised serious question

about the cumulative data interpretation on the self-image, self-perception, aspiration and personality development of students [p. 3]."

Educational opportunities are not equal for all students. Many students begin their education with severe handicaps because of circumstances of socioeconomic level and ethnic background. These students start school at a disadvantage and, unless something is done to correct it, the disadvantage becomes greater with time. In recent years, however, we have witnessed a growing concern for these students. Increased government participation and extensive efforts of private agencies all speak of a national determination to provide a greater educational opportunity for the disadvantaged. "Clearly there is a need to understand all we can about the attitude and behavior of socially disadvantaged children (Brembeck, 1966, p. 217)." The presence of a relationship between academic achievement and locus of control could provide implications for screening programs or for programs designed to apply limited resources where they might achieve the maximum benefit.

The public school remains the formal, and perhaps, the foremost social institution for the promotion of educational objectives in the United States (Knezevich, 1969). If locus of control is a factor relating to academic

achievement, it is a factor which needs clarification to facilitate efforts toward the improvement of our schools as socializing institutions.

Hypotheses

Previous research has shown measures of locus of control to be sensitive to both socioeconomic level and ethnic background, however, there is a paucity of research dealing with the relationship between locus of control and academic achievement within these groups. The number of research studies investigating this relationship, using the partial correlation technique, was not sufficient to permit formulation of predictive hypotheses therefore exploratory hypotheses, in null form, were used. The following null hypotheses were formulated and tested in the study:

1. The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for middle socioeconomic level black students.

2. The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for middle socioeconomic level white students.

3. The partial correlation coefficient between

academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for middle socioeconomic level Mexican-American students.

4. The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for lower socioeconomic level black students.

5. The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for lower socioeconomic level white students.

6. The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for lower socioeconomic level Mexican-American students.

7. The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for middle socioeconomic level male students.

8. The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for middle socioeconomic level female students.

9. The partial correlation coefficient between

academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for lower socioeconomic level male students.

10. The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for lower socioeconomic level female students.

11. The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for black male students.

12. The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for white male students.

13. The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for Mexican-American male students.

14. The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for black female students.

15. The partial correlation coefficient between academic achievement and locus of control, removing the

effects of IQ, is not significantly different from zero for white female students.

16. The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for Mexican-American female students.

Method

Subjects. The study was limited to 180 ninth, tenth and eleventh grade students from an urban high school in the Gulf Coast area.

A stratified random sampling technique was used in order to insure the selection of fifteen students in each of the following categories:

Black, middle socioeconomic level, male

Black, middle socioeconomic level, female

Black, lower socioeconomic level, male

Black, lower socioeconomic level, female

White, middle socioeconomic level, male

White, middle socioeconomic level, female

White, lower socioeconomic level, male

White, lower socioeconomic level, female

Mexican-American, middle socioeconomic level, male

Mexican-American, middle socioeconomic level, female

Mexican-American, lower socioeconomic level, male

Mexican-American, lower socioeconomic level, female

Instruments. Four instruments were used for assessment in the study. They were the Stanford Achievement test, the Otis-Lennon Mental Ability Test, the Rotter I-E Scale, and the Duncan Socioeconomic Index for Occupations.

The Stanford Achievement Test was the standardized achievement test administered by the school district as a part of its guidance program. The testing was under the supervision of the Guidance Department and in accordance with standardized instructions.

The Otis-Lennon Mental Ability Test was the standardized test utilized by the school district to obtain IQ scores. The test was administered under the supervision of the Guidance Department and in accordance with standardized instructions.

The Rotter I-E Scale was administered to obtain a measure of locus of control. It was administered under the supervision of the researcher to ninth, tenth and eleventh grade students. The test was administered in accordance with standardized instructions.

Duncan's (1961) Socioeconomic Index for Occupations was used to determine socioeconomic level of the students. The occupation of the head of the student's household was considered definitive for classifying the student as middle

or lower socioeconomic level.

Treatment of the data. Thorndike and Hagen (1961) have indicated that there is a clear-cut relationship between intelligence test scores and academic achievement. In order to determine if there was a relationship between academic achievement and locus of control it was necessary to partial out the confounding effects of IQ.

The statistical technique used in the study was a three variable partial correlation. Product-moment correlations were computed between academic achievement and locus of control, academic achievement and IQ, and locus of control and IQ. Within each of the three ethnic groups the procedure was repeated for middle and lower socioeconomic levels and finally for sex within each of the ethnic groups.

Partial correlations were computed between academic achievement and locus of control with the relational effects of IQ removed (Bruning and Kintz, 1968). The partial correlation coefficients were tested for significant difference from zero at the .05 level and the .01 level (Ferguson, 1966).

Limitations of the study. The study is subject to the limitations of the instruments used. The relationships and conclusions are limited to the individuals in

the sample and no attempt was made to generalize to other populations.

Definition of Terms

Since terms were used which could have varied interpretations the following definitions were given in order to clarify their usage in the study.

Academic achievement refers to the subject's composite standard score obtained by each student from a standardized achievement test administered by the Guidance Department of the subject high school.

Ethnic background refers to the subjects' ethnic background (black, white or Mexican-American) as it was designated by the student on the test instrument response sheet.

High school student refers to students in the ninth, tenth and eleventh grade in an urban high who were selected to participate in the study.

IQ refers to the subject's scores on a standardized group intelligence test. The test used in the study was the Otis-Lennon Mental Ability Test. The test was administered by the Guidance Department of the subject high school.

Locus of control refers to the subject's score on the Rotter I-E scale (Rotter, 1966).

Socioeconomic level refers to the rankings of the heads of the households, in which the students included in the study resided, as indicated on the Duncan Socioeconomic Index for Occupations (Duncan, 1961). Index ratings above 38.5 were classified as middle socioeconomic level. Index ratings below 38.5 were classified as lower socioeconomic level.

Setting for the Study

A brief description of the community, school system, faculty and student body included in the study is as follows.

The community. The subject high school was an urban high school in the Texas Gulf Coast area. The population of the district in 1970 was 17,739 of whom 11,733 resided in the city and 6,006 in the surrounding area.

The economy of the district is dependent primarily upon agri-business and petro-chemical industries which include: cattle, rice, cotton, fishing, packing, dairy products, oil production, oil refining, petro-chemicals and port activities. These varied industries provide a wide range of employment opportunities requiring both skilled and unskilled employees.

The school system. The school district has four elementary schools, two junior high or middle schools, and

one high school.

The average daily attendance for the district is approximately 3,950 and has varied less than one and one-half percent over the past six years.

The faculty. Permission to conduct the study and to obtain data from the school district was obtained from the assistant superintendent and the principal of the high school. They showed an interest in the study, were receptive to research in the school, and were extremely cooperative and helpful in the completion of the study.

The high school professional staff consisted of a principal, two assistant principals and three guidance counselors. The teaching faculty consisted of seventy teachers with an average class size of twenty-two students.

The student body. The high school, which consists of grades nine through twelve, has an enrollment of 1,297 students. It has a tri-ethnic composition of 251 or nineteen percent black, 855 or sixty-six percent white, and 191 or fifteen percent Mexican-American students. The student body represents both middle and lower socioeconomic levels.

Chapter II

Review of Literature

The purpose of this chapter was to review the professional literature in two general categories with regard to the concept of locus of control. The first category was concerned with the theoretical background of locus of control while the second category focused on empirical studies and research related to the problem under investigation in this study.

Theoretical Background

Locus of control is an expectancy variable rather than a motivational variable. Social learning theory (Rotter, 1954) provides the general theoretical background for the concept of locus of control. In social learning theory (Rotter, 1954) the basic formula for the prediction of goal directed behavior is as follows:

$$BP = f(E \text{ \& } RV)$$

This may be read as follows: The potential for behavior (BP) to occur is a function of the expectancy (E) of an individual that engaging in a particular behavioral event will lead to a particular goal and the reinforcement value (RV) of that goal. The reinforcement associated with a particular behavioral event acts to strengthen an expectancy

that the reinforcement will follow that particular behavioral event in the future. Behavior is determined by the value of the goal to the individual and the individual's expectancy that a particular behavioral event will lead to the acquisition of the goal.

The formula (Rotter, 1954) is limited in application since it deals only with the potential for a given behavior to occur in relationship to a specific reinforcement. Therefore, functionally related behaviors and goals are recognized through the more general formula:

$$NP = f(FM \text{ \& } NV)$$

This may be read: The potential for any given set of behaviors (Need Potential) to occur is a function of a set of expectancies (Freedom of Movement) that engaging in these behaviors will lead to a set of reinforcements that have an associated value (Need Value).

The set of reinforcements called need values represent culturally defined success goals and motives that organize and direct behavior in our society. Examples of these needs include wealth, power, independence, etc. Rotter assumes that needs alone are not sufficient to explain or predict human behavior. In social learning theory the crucial consideration is the individual's expectation for success or failure of a particular behavioral event. The need value aspect of the theory is related only to the potential for

certain directions of behavior. In fact, Rotter (1960) stated that many erroneous behavioral predictions result from judgments based on psychological testing data which take into account needs and propensities and ignore cognitive expectancies concerning the realization of satisfying these needs. Expectations of attaining a desired goal at a particular time and in a particular situation must be considered when predicting behavior.

The locus of control construct is an integral unit of Rotter's social learning theory and is directly related to the perceived discrepancy between an individual's valued success goals and his expectations of attaining them. Locus of control is based on the assumption that individuals differ in the way they organize their external world in relation to their behavior. An internal locus of control characterizes an individual who perceives the occurrence or outcome of an event as contingent upon his own behavior or his own relatively permanent characteristics. At the other end of the continuum an external locus of control characterizes an individual who perceives the occurrence or outcome of an event as not contingent upon his own behavior. An individual with an external locus of control would typically attribute the occurrence or outcome of an event to luck, chance, fate, the influence of more powerful others, or as unpredictable because of the great complexity of the world

around him. In social learning theory (Rotter, 1966) a reinforcement associated with a particular behavioral event acts to strengthen an expectancy that a particular behavioral event will be followed by a particular reinforcement in the future. It follows that when an individual perceives that a reinforcement is not contingent upon his own behavior that its occurrence will not increase his expectancy as much as when it is perceived as contingent upon his behavior. The patterns of reinforcement received by individuals determine their generalized expectancies for future reinforcement and cause them to differ in the degree to which they attribute reinforcement to their own actions. Locus of control is a generalized expectancy for reinforcement that extends to and operates over a wide variety of life situations.

Development of Measures of Locus of Control

There were a number of early attempts to develop an instrument to measure locus of control as a personality variable in social learning theory. The first attempt was reported by Phares (1955) in a doctoral dissertation. Phares designed a 13-item Likert-type scale to measure the characteristic of attributing the occurrence or outcome of an event to chance rather than to oneself.

Phares' work was followed by James' (1957). James revised the Phares scale, taking those items which appeared

most successful in the Phares study, and expanded it to a 26-item Likert-type scale.

The James-Phares scale was used in several research studies (Lefcourt, 1966) but was later abandoned in favor of a new 60-item forced-choice questionnaire developed by Rotter, Seeman, and Liverant (1962). Reduction and purification of the 60-item scale was undertaken by Liverant, Rotter, and Crowne. Item analysis and correlation with the Marlowe-Crowne Social Desirability Scale (Crowne and Marlowe, 1964) led to the elimination of all but 23 items. The final version of the scale is a 29-item forced-choice test including 6 filler items to disguise the purpose of the test. This test is known as the I-E Scale and was the instrument used in this study.

Since the development of the James-Phares scale a number of new scales have been developed for various age levels. The Locus of Control Scale for children is a 23-item orally administered true-false scale (Bialer, 1961); The Childrens Picture Test of Internal-External Control presents a series of cartoons depicting lifelike situations. The subject responds by stating "what he would say" in each of the situations depicted (Battle and Rotter, 1963); The Intellectual Achievement Responsibility Questionnaire (IAR) is a 34-item forced-choice scale that was developed to assess "self-responsibility" in achievement situations.

The items deal with whether or not the subject feels that he, rather than other persons, usually caused the successes and failures experienced in intellectual achievement situations (Crandall, Katkovsky, and Preston, 1962); The Powerlessness and Normlessness Scales developed by Dean (1961) are Likert-type scales that have been derived from sociological studies of alienation (Lefcourt, 1966). These scales are very similar to the I-E Scale and measure a similar construct.

Locus of Control and Ethnic Background

Several studies have linked locus of control to ethnic background. Gore and Rotter (1963) and Rotter (1966) reported no significant difference in locus of control in samples of white and black college students. However, in studies by Lefcourt and Ladwig (1965a, 1966); where inmates in two federal prisons were not significantly different in social class, age, intelligence, or reason for incarceration; blacks were found to be significantly more external than whites. Graves (1961), in a tri-ethnic study cited by Rotter (1966), found American Indians to be more external, whites least external, and Mexican-Americans expressing intermediate scores. Coleman et al. (1966) found in their national sample that whites and Oriental Americans were least external in their orientations, while blacks, Puerto Ricans, Mexican-Americans and American Indians were more

external. In summary, individuals from minority ethnic backgrounds have generally been characterized by a tendency to have higher external locus of control scores in studies involving a variety of situations.

Locus of Control and Socioeconomic Level

Studies involving college students (Gore and Rotter, 1963; Rotter, 1966) have failed to find significant social class differences in locus of control. These findings may be due, in part, to the fact that the socioeconomic level of the college population is very homogeneous since studies with less homogeneous subjects have shown differentiation. Franklin (1963) in a study involving a national stratified sample of 1,000 high school students, found a significant relationship between higher socioeconomic level and internal locus of control. Further, Battle and Rotter (1963) using black and white sixth- and eighth-grade students, found significant differences in locus of control for different socioeconomic levels. Several other studies have revealed that children from lower socioeconomic levels have higher external scores than children from higher socioeconomic levels (Crandall, Katkovsky and Crandall, 1965; Shaw and Uhl, 1971).

Apart from ethnic differences and social class differences, studies have demonstrated locus of control differences for both ethnic background and socioeconomic

level. Battle and Rotter (1963) found an interaction between ethnic background and socioeconomic level on the locus of control variable. Lower socioeconomic level blacks were more external than lower socioeconomic level whites or middle socioeconomic level blacks and whites. Similarly, Shaw and Uhl (1969) found blacks to be more external than whites within an upper-middle socioeconomic level sample of elementary school children.

Locus of Control and Sex

Conflicting evidence has been found regarding the relationship of sex to locus of control. In a study by Crandall, Katkovsky and Crandall (1965) girls were found to be more likely to give responses indicating internal locus of control orientations than were boys, while no relationship was found in a study by Battle and Rotter (1963).

The Relationship of IQ to Locus of Control

The relationship of IQ to locus of control is not clear. In a study by Bialer (1961), using elementary school subjects, a positive relationship was found between IQ and locus of control, with internal locus of control being related to higher IQ scores. In a study, using both elementary and high school students, Crandall, Katkovsky and Crandall (1965) reported results almost identical to

Bialer. Battle and Rotter (1963), on the other hand, reported that lower socioeconomic level blacks with high IQs were more external than middle socioeconomic level whites with lower IQs.

Locus of Control and Achievement

Few studies examining the relationship between locus of control and academic achievement have been performed. Franklin (1963), in his study involving 1,000 high school students, found a significant relationship between internal locus of control and measures of achievement motivation. Achievement motivation variables included such items as early attempts to investigate colleges, intentions to go to college, amount of time spent on homework, and parents' interest in homework. Cellura (1963), in an unpublished study cited by Rotter (1966), found a significant relationship between the SRA Academic Achievement test, with IQ partialled out, and locus of control for lower socioeconomic level male students. Crandall, Katkovsky and Crandall (1965) found that their scale, The Intellectual Achievement Responsibility Questionnaire (IAR), predicted differently for the two sexes at different age levels. Using standardized achievement test scores the IAR predicted best for young girls and older boys.

Locus of Control in Other Research

Recent studies have been concerned with the alteration of locus of control. Using a special counseling program Reimanis (1970) was able to identify increases in feelings of internal locus of control in both early graders and college students. Students with feelings of internal locus of control had better grades than students with feelings of external locus of control. In an enriched educational program for first grade disadvantaged children, Shore, Milgram, and Malasky (1971) found major changes as compared with regular first grade students. Using an experimental and a control group, they found significant increases in both internal locus of control and achievement. Differences were found among teachers; with the youngest and least experienced teacher the most effective both in changing locus of control and in bringing about cognitive change.

A study by Lefcourt and Ladwig (1965a) sought to vary the locus of control of a group of black students. In this study, highly external black students were led to believe that they were being studied as jazz musicians. In a game situation, they competed with white opponents despite continuous losses when they believed that the experimenter was interested in them as jazz musicians. The white students failed to show the same persistence. In this case where external locus of control orientations should have predicted

failure avoidance (quitting the experiment), the black students continued to meet competitive challenges and maintained expectancies which characterized them as being highly internal.

Locus of control was found to be the most successful single predictor of academic success in a massive national study of high school students of all representative minority backgrounds (Coleman et al., 1966). In fact, for blacks, Puerto Ricans, Mexican-Americans and American Indians locus of control items were more highly related to academic achievement than any other variable, including both those relating to home and school life. Shore, Milgram and Malasky (1971) stated that it was their belief that change in locus of control might be prerequisite to cognitive change.

Chapter III

Methods and Procedures

In this chapter the subjects of the study are identified, the instruments used in the study are described, methods and procedures are discussed, and the statistical technique employed in the treatment of the data is explained.

Subjects of the Study

High school students were selected to participate in the study in order to provide an ethnically integrated setting where one school served the entire community.

Seniors were excluded from the study because their marks are affected by elements different from those affecting the marks of ninth, tenth and eleventh grade students. Since many teachers realize that they will teach the students in the next higher grade the marks of ninth, tenth and eleventh grade students tend to be based primarily on achievement. Many seniors, however, are terminating their formal education and senior marks are not a requirement for college admission therefore their exclusion from the study removes potential unreliability.

The sample for the study consisted of one-hundred and eighty ninth, tenth and eleventh grade high school students. A stratified random sampling technique was used to

insure that adequate numbers of black, white and Mexican-American; male and female; middle and lower socioeconomic level students were selected. The sample included 66 ninth grade students, 67 tenth grade students, and 47 eleventh grade students and from the sample fifteen students were selected for each of the categories.

Instruments Used in the Study

Rotter I-E Scale. Locus of control was determined by the subject's response to the Rotter (1966) I-E Scale. The I-E Scale is a 29-item forced choice instrument. Six of the twenty-nine items are filler items, the other twenty-three items offer choices between internal and external belief statements. The total score is computed by summing the number of external beliefs endorsed.

For a sample of 200 male and 200 female elementary psychology students at Ohio State University an internal consistency analysis (Kuder-Richardson) yielded $r = .70$ for males, and the same for females (Rotter, 1966). For two subgroups of this sample test-retest reliability coefficients were computed. Test-retest reliability after a 1-month period was $r = .60$ for males ($N = 30$), $r = .83$ for females ($N = 30$), and $r = .73$ for the combined groups ($N = 60$).

Correlations with the Marlowe-Crowne Social

Desirability Scale (1964), a scale designed to measure the tendency of people to dissemble in order to put themselves in a socially desirable light, range from $-.07$ to $-.35$. The absence of relationship between these two measures would suggest that I-E scores are independent of social-desirability tendencies. Several factor analyses reported by Rotter (1966) support the assumption of unidimensionality of the I-E Scale, and numerous laboratory and survey studies give evidence for its construct validity. The largest sample studied was that of Blackman (1962), who obtained a correlation of $.56$ for 151 elementary psychology students. Florence Johnson (1961) obtained a correlation of $.58$ for 120 student subjects.

Accumulated data from a number of samples consisting of high school and beginning college students are reported by Rotter (1966) with sample means from 5.95 to 9.56 and standard deviations from 3.36 to 4.10 . Thus the instrument was judged to be adequate for this study.

Duncan Socioeconomic Index for Occupations. Socio-economic level was determined by the use of Duncan's Socioeconomic Index for Occupations. The scale was derived from the 1950 Census aggregate data on the average income and education level of persons in each Census occupational category. Weights for these two variables were based on regression equations relating North-Hatt ratings with 1950

Census income and education figures for 45 of the 90 North-Hatt occupations. Socioeconomic indexes have been computed for all of the 269 occupations in the Detailed Classification of the Bureau of Census: 1950 (U. S. Bureau of Census, 1950). The socioeconomic index values range from a low of 0 to a high of 96. Duncan has suggested that the optimum cutting point for discrimination between white collar and manual workers is an index value of 38.5. For this reason, occupations which ranked above 38.5 were considered middle socioeconomic level and occupations which ranked below 38.5 were considered lower socioeconomic level. In a recent review, Robinson et al. (1969) said that they had found the Duncan Socioeconomic Index for Occupations to be superior for most survey and large sample situations.

The Stanford Achievement Test. Academic achievement of the subjects was measured by the use of a composite score computed from standard scores obtained on the English, numerical competence, mathematics (Part A), reading, science (Part A), social studies and spelling subtests of the Stanford Achievement Test: High School Basic Battery, Form W.

The Stanford Achievement Test was administered by the Guidance Department of the high school to all ninth grade students in February of each year. The standardized group

achievement test scores used in this study were those obtained from the administration of this test when the students were in the ninth grade.

The Stanford Achievement Test was reviewed in The Seventh Mental Measurement Yearbook (Buros, 1972) by Adams and Helmstadter. Adams (1972) reported that the test represented a high level of skill in item writing and made use of adequate samples in item analysis and standardization. Helmstadter (1972) said that the test provided an excellent sample of school achievement items and that the technical quality of the instrument was high.

The Otis-Lennon Mental Ability Test. IQ of the subjects was measured by the use of the Otis-Lennon Mental Ability Test. These tests were also administered during the month of February to all ninth grade students. Milholland, in a review of the test (1972), said that the construction and norming of the test adhered to the highest level of current standards and that it was a product of exceptional merit.

Procedures

The locus of control instrument was administered to students from seventeen English classes. These classes were chosen because all students met in English classes every day each week. The tests were administered in

classrooms in order to provide a comfortable surface on which to write and also an environment in which the students were familiar. English teachers assisted as proctors in order to minimize collaboration between subjects. The purpose of the instrument was not explained to the students. They were told, only, that it was part of a research project in which the school district was participating.

Answer sheets were distributed to the students and they were instructed to fill in the information about themselves on the top half of the form. When they had completed this portion of the answer sheet, test booklets were distributed and the students were instructed to read and follow the instructions carefully. Since the instructions for the I-E Scale are simple and straight-forward, and the instrument can be self administered, no further instructions were given. Immediately after the completion of the test, they were collected and scored.

Duncan's (1961) Socioeconomic Index for Occupations was applied to each student in the sample based on information obtained from the answer sheet with respect to the occupation of the head of the household in which the student resided. The index value of the occupation determined the socioeconomic level into which the student fell: middle or lower.

Standardized achievement test scores represented those

scores obtained by each student from the achievement tests administered by the Guidance Department of the subject high school. A member of the Guidance Department staff provided the researcher with a computer print-out of the achievement test scores for the students of the three grades participating in the study.

IQ scores represented those scores obtained by each student from the mental ability tests administered by the Guidance Department of the subject high school. A member of the Guidance Department staff provided the researcher with a computer print-out of the IQ scores for the students of the three grades participating in the study.

Ethnic background information was obtained from student response to an item on the answer sheet which required them to indicate their ethnic background (black, white or Mexican-American). Their response was verified by the student's homeroom teacher.

The sex of the students was determined by having the students indicate, on the answer, whether they were male or female. Classifications were verified with student records.

Organizing the Data. After all instruments were scored the data were transcribed on to a worksheet (Appendix D). The data were then keypunched into electronic data processing cards for processing.

Processing the Data

A program was written for the UNIVAC 1108 Computer at the University of Houston Computer Center. The function of the program was to compute means, standard deviations and Pearson product-moment correlations between academic achievement and locus of control, academic achievement and IQ, and locus of control and IQ.

Using the correlation coefficients computed in the above procedure, the program computed the partial correlation coefficients between academic achievement and locus of control removing the effects of IQ. The basic formula (Bruning and Kintz, 1968) is

$$r_{ab.c} = \frac{r_{ab} - r_{ac}r_{bc}}{\sqrt{1 - r_{ac}^2} \sqrt{1 - r_{bc}^2}}.$$

The "t" test to determine whether a partial correlation is significantly different from zero was contained in the program. This "t" test formula (Ferguson, 1966) is

$$t = \frac{r_{ab.c}}{\sqrt{(1 - r_{ab.c}^2) / (N - 3)}}.$$

The results of this test were compared to a table of critical values for "t" with $N - 3$ degrees of freedom at the .05 and .01 levels of confidence to determine if they

were significant. Decisions to accept or reject the null hypotheses in the study were made on the bases of these comparisons.

Chapter IV

Results

This chapter will review the assumptions underlying the Pearson product-moment statistical technique and present the findings from the analysis of the data.

The statistical nature of this study is correlational and its primary thrust was an investigation of relationships. The assumptions underlying the statistical technique were tested by the following procedures.

The assumptions for the legitimate use of Pearson product-moment correlations are that there be at least interval scaling, a rectilinear relationship between the two variables, and that each variable be normally distributed. To insure that the underlying assumptions had been met, a scatter diagram of each set of the data was constructed and inspected for a rectilinear relationship (Guilford, 1965). Each set of data was, then, subjected to the Shapiro-Wilk (1965) test for normality of the distribution of locus of control scores, academic achievement scores, and IQ scores. The results of these tests indicated that the underlying assumptions for the legitimate use of the Pearson product-moment statistical technique had not been violated.

Prior to the determination of the estimate of relationships through the partial correlation technique, or the

determination of the significance of these relationships, some preliminary data treatment was accomplished. Preliminary treatment involved organization of the data. Data pertinent to the hypotheses were grouped into three distinct groups. The first group contains sample characteristics by ethnic background and socioeconomic level and pertain to hypothesis 1 through 6 on pages 4 and 5. These data are presented in Table 1 on page 36. The second group contains sample characteristics by sex and socioeconomic level and pertains to hypotheses 7 through 10 on pages 5 and 6. These data are presented in Table 2 on page 38. The third, and final, group contains sample characteristics by sex and ethnic background and pertains to hypotheses 11 through 16 on pages 6 and 7. These data are presented in Table 3 on page 39.

Sample characteristics are presented in terms of means and standard deviations for locus of control scores, composite academic achievement test scores, and IQ scores for each hypothesis in the study. Preliminary treatment of these data provided some pertinent findings incidental to the hypotheses of the study.

Sample Characteristics by Ethnic Background and Socioeconomic Level

Mean locus of control scores for middle socioeconomic level students ($n = 30$ in each group) showed that blacks

tended to have higher external scores (11.10), whites had lower external scores (9.33), and Mexican-Americans had intermediate external scores (9.93). Mean academic achievement scores, for the same groups; showed that blacks had lower scores (45.83), whites had higher scores (45.83), and Mexican-Americans had intermediate scores (41.73). Mean IQ scores for the groups showed that blacks had lower scores (89.33), whites had higher scores (101.33), and Mexican-Americans had scores falling between those of blacks and whites (91.6).

Mean locus of control scores for lower socioeconomic level students (n = 30 for each group) showed that blacks tended to have higher external scores (10.77), Mexican-Americans had lower external scores (9.50), and whites had intermediate external scores (9.97). Mean academic achievement scores, for the same group, showed that blacks had lower scores (37.67), whites had higher scores (45.33), and Mexican-Americans had intermediate scores (41.93). Mean IQ scores for the groups showed that blacks had lower scores (85.00), whites had higher scores (99.73), and Mexican-Americans had scores falling between those of blacks and whites (90.63).

Table 1
Sample Characteristics by
Ethnic Background and Socioeconomic Level

			Locus of Control*		Academic Achievement		IQ	
	N	SEL	Mean	s.d.	Mean	s.d.	Mean	s.d.
Black	30	middle	11.10	3.33	37.70	10.57	89.93	13.31
White	30	middle	9.33	4.05	45.83	5.41	101.33	9.46
Mex-Am	30	middle	9.93	2.83	41.73	5.90	91.63	10.88
Black	30	lower	10.77	2.08	37.67	4.18	85.00	6.96
White	30	lower	9.97	3.36	45.33	5.60	99.73	11.52
Mex-Am	30	lower	9.50	3.39	41.93	10.14	90.63	12.90

Note.-Table 1 presents sample characteristics which are relevant to hypotheses 1 through 6.

*Higher scores indicate a greater number of external responses.

Sample Characteristics by Sex and Socioeconomic Level

Mean locus of control scores for middle socioeconomic level students (n = 45 for each group) showed that males tended to have lower external scores (9.02), while females had higher external scores (11.22). Mean academic achievement scores, for the same groups, showed that males had lower scores (40.49) than females (43.02). Mean IQ scores for the groups showed that males had lower scores (92.78) than females (95.82).

Mean locus of control scores for lower socioeconomic level students (N = 45 for each group) showed that males tended to have lower external scores (9.40), while females had higher external scores (10.76). Mean academic achievement scores, for the same groups, showed that males had lower scores (41.22) than females (42.07). Mean IQ scores for the groups showed that males had higher IQ scores (93.67) than females (89.91).

Sample Characteristics by Sex and Ethnic Background

Mean locus of control scores for male students (n = 30 for each group) showed that blacks tended to have higher external scores (10.20), whites had lower external scores (8.57), and Mexican-Americans had intermediate scores (8.87). Mean academic achievement scores, for the same groups,

Table 2
Sample Characteristics by
Sex and Socioeconomic Level

	N	SEL	Locus of Control*		Academic Achievement		IQ	
			Mean	s.d.	Mean	s.d.	Mean	s.d.
Male	45	middle	9.02	3.27	40.49	8.41	92.78	12.17
Female	45	middle	11.22	3.36	43.02	8.02	95.82	11.64
Male	45	lower	9.40	3.24	41.22	7.30	93.67	14.35
Female	45	lower	10.76	2.64	42.07	8.15	89.91	9.56

Note.-Table 2 presents sample characteristics which are relevant to hypotheses 7 through 10.

*Higher scores indicate a greater number of external responses.

Table 3
Sample Characteristics by
Sex and Ethnic Background

	N	Sex	Locus of Control*		Academic Achievement		IQ	
			Mean	s.d.	Mean	s.d.	Mean	s.d.
Black	30	male	10.20	2.64	35.40	6.74	85.03	8.20
White	30	male	8.57	3.91	46.77	6.23	103.80	11.11
Mex-Am	30	male	8.87	2.91	40.40	6.10	90.83	12.48
Black	30	female	11.67	2.71	39.97	8.54	89.90	11.54
White	30	female	10.73	3.18	44.40	4.37	97.27	8.83
Mex-Am	30	female	10.57	3.10	43.27	9.80	91.43	11.37

Note.-Table 3 presents sample characteristics which are relevant to hypotheses 11 through 16.

*Higher scores indicate a greater number of external responses.

showed that blacks had lower scores (35.40); whites had higher scores (46.77), and Mexican-Americans had intermediate scores (40.40). Mean IQ scores for the groups showed that blacks had lower scores (85.03), whites had higher scores (103.80), and Mexican-Americans had scores falling between those of blacks and whites (90.83).

Mean locus of control scores for female students (N = 30 for each group) showed that blacks tended to have higher external scores (11.67), Mexican-Americans had lower external scores (10.57), and whites had intermediate external scores (10.73). Mean academic achievement scores, for the same groups, showed that blacks had lower scores (39.97), whites had higher scores (44.40), and Mexican-Americans had intermediate scores (43.27). Mean IQ scores for the groups showed that blacks had lower scores (89.90), whites had higher scores (97.29), and Mexican-Americans had scores falling between those of blacks and whites (91.43).

The Hypotheses

The next phase of the analysis of the data was to test the hypotheses. The hypotheses were stated in null form: Pearson product-moment correlation coefficients were calculated between locus of control scores and academic achievement scores, locus of control scores and IQ scores, and academic achievement scores and IQ scores for each

hypothesis; partial correlation coefficients were computed; a two tailed "t" test for significance was performed; and the decision to accept or reject the null hypotheses was based on the results of the "t" tests. Rejection of the null hypotheses indicated that the value of the partial correlation coefficient differed significantly from zero while failure to reject the null hypotheses indicated that the partial correlation coefficient differed from zero only by chance.

Degrees of freedom associated with this procedure were defined as $N - 3$, or in the case of hypotheses 1 through 6 and hypotheses 11 through 16, 27 degrees of freedom and for hypotheses 7 through 10, 42 degrees of freedom. The critical value of "t" required for significance at the .01 level of confidence is 2.771, with 27 degrees of freedom and 2.704, with 40 degrees of freedom. The critical value of "t" required for significance at the .05 level of confidence is 2.052, with 27 degrees of freedom and 2.021, with 40 degrees of freedom. The results of these analyses are presented in Table 4 on page 48.

Hypothesis No. 1, "The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for middle socioeconomic level black students" was accepted. The partial correlation coefficient obtained from the

analysis (.018) was not significantly different from zero. For middle socioeconomic level black students there was no significant relationship between academic achievement and locus of control.

Hypothesis No. 2, "The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for middle socioeconomic level white students" was accepted. The partial correlation coefficient obtained from the analysis (-.101) was not significantly different from zero. For middle socioeconomic level white students there was no significant relationship between academic achievement and locus of control.

Hypothesis No. 3, "The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for middle socioeconomic level Mexican-American students" was accepted. The partial correlation coefficient obtained from the analysis (.011) was not significantly different from zero. For middle socioeconomic level Mexican-American students there was no significant relationship between academic achievement and locus of control.

Hypothesis No. 4, "The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero

for lower socioeconomic level black students" was accepted. The partial correlation coefficient obtained from the analysis ($-.088$) was not significantly different from zero. For lower socioeconomic level black students there was no significant relationship between academic achievement and locus of control.

Hypothesis No. 5, "The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for lower socioeconomic level white students" was accepted. The partial correlation coefficient obtained from the analysis ($-.044$) was not significantly different from zero. For lower socioeconomic level white students there was no significant relationship between academic achievement and locus of control.

Hypothesis No. 6, "The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for lower socioeconomic level Mexican-American students" was accepted. The partial correlation coefficient obtained from the analysis ($.094$) was not significantly different from zero. For lower socioeconomic level Mexican-American students there was no significant relationship between academic achievement and locus of control.

Hypothesis No. 7, "The partial correlation coefficient

between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for middle socioeconomic level male students" was accepted. The partial correlation coefficient obtained from the analysis ($-.165$) was not significantly different from zero. For middle socioeconomic level male students there was no significant relationship between academic achievement and locus of control.

Hypothesis No. 8, "The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for middle socioeconomic level female students" was accepted. The partial correlation coefficient obtained from the analysis ($.001$) was not significantly different from zero. For middle socioeconomic level female students there was no significant relationship between academic achievement and locus of control.

Hypothesis No. 9, "The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for lower socioeconomic level male students" was rejected. The partial correlation coefficient obtained from the analysis ($-.387$) was significantly different from zero at the .01 level of confidence. The negative correlation indicates a significant relationship between internal locus

of control and academic achievement with low internal locus of control scores related to high academic achievement test scores.

Hypothesis No. 10, "The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for lower socioeconomic level female students" was accepted. The partial correlation coefficient obtained from the analysis (.188) was not significantly different from zero. For lower socioeconomic level female students there was no significant relationship between academic achievement and locus of control.

Hypothesis No. 11, "The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for black male students" was accepted. The partial correlation coefficient obtained from the analysis (-.122) was not significantly different from zero. For black male students there was no significant relationship between academic achievement and locus of control.

Hypothesis No. 12, "The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for white male students" was accepted. The partial correlation coefficient obtained from the analysis (-.129) was

not significantly different from zero. For white male students there was no significant relationship between academic achievement and locus of control.

Hypothesis No. 13, "The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for Mexican-American male students" was rejected. The partial correlation coefficient obtained from the analysis ($-.487$) was significantly different from zero at the .01 level of confidence. The negative correlation indicates a significant relationship between internal locus of control and academic achievement with low internal locus of control scores related to high academic achievement test scores.

Hypothesis No. 14, "The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for black female students" was accepted. The partial correlation coefficient obtained from the analysis ($.043$) was not significantly different from zero. For black female students there was no significant relationship between academic achievement and locus of control.

Hypothesis No. 15, "The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero

for white female students" was accepted. The partial correlation coefficient obtained from the analysis (.053) was not significantly different from zero. For white female students there was no significant relationship between academic achievement and locus of control.

Hypothesis No. 16, "The partial correlation coefficient between academic achievement and locus of control, removing the effects of IQ, is not significantly different from zero for Mexican-American female students" was accepted. The partial correlation coefficient obtained from the analysis (.201) was not significantly different from zero. For Mexican-American female students there was no significant relationship between academic achievement and locus of control.

TABLE 4

The Partial Correlation Coefficient Between
Academic Achievement and Locus of Control

HYPOTHESIS	GROUPS						
	SEL	ETHNIC	SEX	N	r*	t	p
Socioeconomic Level and Ethnic Background							
1	M	B	M&F	30	.018	.09	n.s.
2	M	W	M&F	30	-.101	-.527	n.s.
3	M	M-A	M&F	30	.011	.057	n.s.
4	L	B	M&F	30	-.088	-.46	n.s.
5	L	W	M&F	30	-.044	-.23	n.s.
6	L	M-A	M&F	30	.094	.49	n.s.
Socioeconomic Level and Sex							
7	M	B,W,M-A	M	45	-.165	-1.08	n.s.
8	M	B,W,M-A	F	45	.001	.006	n.s.
9	L	B,W,M-A	M	45	-.387	-2.72	.01
10	L	B,W,M-A	F	45	.188	1.24	n.s.
Ethnic Background and Sex							
11	M&L	B	M	30	-.122	-.64	n.s.
12	M&L	W	M	30	-.129	-.68	n.s.
13	M&L	M-A	M	30	-.487	-2.89	.01
14	M&L	B	F	30	.043	.22	n.s.
15	M&L	W	F	30	.053	.27	n.s.
16	M&L	M-A	F	30	.201	1.07	n.s.

t = 2.052 significant at .05 level for N of 30

t = 2.771 significant at .01 level for N of 30

t = 2.021 significant at .05 level for N of 45

t = 2.704 significant at .01 level for N of 45

* denotes partial correlation coefficient

Chapter V

Summary, Conclusions and Recommendations

This chapter will present a summary of the methods and procedures, and the findings of the analysis of the data. It will also present conclusions based on the findings and make recommendations for further research.

Summary

The study was designed to determine if a relationship exists, independent of IQ, between locus of control and academic achievement in grades nine, ten and eleven for male and female, middle and lower socioeconomic level; black, white and Mexican-American high school students.

Null hypotheses were formulated to test whether partial correlation coefficients between academic achievement and locus of control, with the effects of IQ removed, were significantly different from zero, where groups were formed on the bases of socioeconomic level and ethnic background, socioeconomic level and sex, and sex and ethnic background.

A stratified random sampling technique was utilized in the selection of one-hundred and eighty subjects for the study. The sampling technique resulted in the selection of fifteen subjects in each of the following

categories:

Black, middle socioeconomic level, male

Black, middle socioeconomic level, female

Black, lower socioeconomic level, male

Black, lower socioeconomic level, female

White, middle socioeconomic level, male

White, middle socioeconomic level, female

White, lower socioeconomic level, male

White, lower socioeconomic level, female

Mexican-American, middle socioeconomic level, male

Mexican-American, middle socioeconomic level, female

Mexican-American, lower socioeconomic level, male

Mexican-American, lower socioeconomic level, female

Each subject's locus of control was determined by the use of the Rotter (1966) I-E Scale; academic achievement was measured by the Stanford Achievement Test; IQ was determined by the use of the Otis-Lennon Mental Ability Test; and socioeconomic level was determined by the use of the Duncan Socioeconomic Index for Occupations.

Test instruments were administered to the subjects of the study in a familiar classroom setting. Upon completion they were collected, scored and their results organized for analysis. The data were keypunched into electronic data processing cards for processing. The analysis of the data

yielded means and standard deviations for each of the groups listed above. Partial correlation coefficients were then computed for each of the null hypotheses.

Preliminary treatment involved the organization of the data. Data pertinent to the hypotheses were placed in three distinct groups. The first grouping was by ethnic background and socioeconomic level; the second grouping was by sex and socioeconomic level; and the third grouping was by sex and ethnic background. Means and standard deviations were computed for locus of control scores, academic achievement test scores, and IQ scores for each of the three groups. Preliminary treatment of these data provided some pertinent findings incidental to the hypotheses of the study.

Findings

The findings of the study are presented in two parts. The first part presents sample characteristics which provide findings incidental to the hypotheses of the study, and the second part presents findings for the hypotheses.

Sample characteristics. Mean scores for locus of control, academic achievement and IQ were ranked ordered from highest scores to lowest scores for each of the three groupings. High locus of control scores indicate an external orientation.

For middle socioeconomic level students, rankings on

mean locus of control scores were: blacks, Mexican-Americans and whites; their rankings on mean academic achievement scores were: whites, Mexican-Americans and blacks; and their rankings on mean IQ scores were: whites, Mexican-Americans and blacks.

For lower socioeconomic level students, rankings on mean locus of control scores were: blacks, whites and Mexican-Americans; their rankings on mean academic achievement scores were: whites, Mexican-Americans and blacks; and their rankings on mean IQ scores were: whites, Mexican-Americans and blacks.

For middle socioeconomic level students, rankings on mean locus of control scores were: females and males; their rankings on mean academic achievement scores were: females and males; and their rankings on mean IQ scores were: females and males.

For lower socioeconomic level students, rankings on mean locus of control scores were: females and males; their rankings on mean academic achievement scores were: females and males; and their rankings on mean IQ scores were: males and females.

For male students, rankings on mean locus of control scores were: blacks, Mexican-Americans and whites; their rankings on mean academic achievement scores were: whites, Mexican-Americans and blacks; and their rankings on mean

IQ scores were: whites, Mexican-Americans and blacks.

For female students, rankings on mean locus of control scores were: blacks, whites and Mexican-Americans; their rankings on mean academic achievement scores were: whites, Mexican-Americans and blacks; and their rankings on mean IQ scores were: whites, Mexican-Americans and blacks.

Findings for the hypotheses. Partial correlation coefficients were computed between academic achievement test scores and locus of control scores with the relational effects of IQ removed. For each of the hypotheses the partial correlation coefficients were tested for significant difference from zero at the .05 level and the .01 level of confidence.

In the previous chapter the analysis of the data revealed statistically significant findings for hypotheses numbers nine and thirteen. In both instances the results were significant at the .01 level of confidence. However, before a great deal of emphasis was placed on the findings, it was considered advisable to determine the probability of their occurrence by chance. By using the binomial expansion, for the level of significance (.05) set for the study, it was concluded that there was a .14 probability that two of the sixteen hypotheses would have been significant even with random data. The .01 level of significance is low enough,

however, to indicate that they did not occur by chance.

The statistical treatment of the data relating to hypotheses 1 through 6 showed that the partial correlations coefficient between academic achievement and locus of control, with the effects of IQ removed, was not significantly different from zero when groups were formed on the bases of socioeconomic level and ethnic background.

The statistical treatment of the data relating to hypotheses 7 through 10 showed that the partial correlation coefficient between academic achievement and locus of control, with the effects of IQ removed, was not significantly different from zero when groups were formed on the bases of socioeconomic level and sex, except for hypothesis number 9 which dealt with lower socioeconomic level male subjects. In this case, the partial correlation coefficient obtained ($-.387$) was significant at the .01 level of confidence and indicated that internal locus of control was related to higher academic achievement for lower socioeconomic level male subjects. These results are consistent with those reported by Cellura (1963) in an unpublished study cited by Rotter (1966).

The statistical treatment of the data relating to hypotheses 11 through 16 showed that the partial correlation coefficient between academic achievement and locus of

control, with the effects of IQ removed, was not significantly different from zero when groups were formed on the bases of ethnic background and sex except for hypothesis number 13 which dealt with Mexican-American male subjects. In this case, the partial correlation coefficient obtained ($-.487$) was significant at the .01 level of confidence and indicated that internal locus of control was related to higher academic achievement for Mexican-American male subjects.

Although only two of the sixteen hypotheses were significant, and all other partial correlation coefficients were near zero and non-significant, there was a directional tendency. All partial correlation coefficients were positive, indicating a relationship between external locus of control and high academic achievement, for female subjects; and negative, indicating a relationship between internal locus of control and high academic achievement for male subjects.

Conclusions

The basic findings of this study would seem to indicate little if any measured relationship between academic achievement and locus of control. However, before this general conclusion is accepted, several alternative possibilities should be considered.

1. Controlling for IQ, which is so closely related to academic achievement, may have eliminated effect. "IQ scores" on this verbal group test may actually be "academic achievement."

2. The instrument used in the study may not have been sensitive enough to measure degrees of locus of control.

3. The sample used in the study was small and may not have been representative.

4. There may have been other uncontrolled contaminating variables present or possibly there were no actual relationships other than for the two hypotheses noted.

5. There may be a small and weak relationship between academic achievement and locus of control.

6. Significant findings in two groups indicate the possibility of any or all of the above conclusions as a possible explanation of the weak results obtained.

Recommendations

Several questions have arisen from the findings of the study. The following recommendations were considered appropriate:

1. Research needs to be conducted to identify the most effective levels of locus of control for different situations. The importance of internal locus of control has been emphasized in the literature but no information

is available about what level of internal locus of control is most effective in what situations.

2. Counseling programs aimed at changing locus of control should be investigated to determine if changes in locus of control are accompanied by changes in achievement.

3. Further research should be conducted to determine the effects of enrichment programs on locus of control and academic achievement.

4. This study should be replicated using larger samples of lower socioeconomic level students and students from minority ethnic backgrounds, where the traditional IQ test is least effective, to determine if measures of locus of control have a place in the total guidance program.

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APPENDICES

Appendix A

Appendix A

Socioeconomic Index for Occupations in the Detailed Classification of the Bureau of the Census: 1950

(From O. D. Duncan, 1961)

Occupations, by Major Occupation Group	Socio- economic Index
<u>Professional, technical, and kindred workers</u>	
Accountants and auditors	78
Actors and actresses	60
Airplane pilots and navigators	79
Architects	90
Artists and art teachers	67
Athletes	52
Authors	76
Chemists	79
Chiropractors	75
Clergymen	52
College presidents, professors, and instructors (n.e.c.)	84
Dancers and dancing teachers	45
Dentists	96
Designers	73
Dieticians and nutritionists	39
Draftsmen	67
Editors and reporters	82
Engineers, technical	85
Aeronautical	87
Chemical	90
Civil	84
Electrical	84
Industrial	86
Mechanical	82
Metallurgical, and Metallurgists	82
Mining	85
Not elsewhere classified	87
Entertainers (n.e.c.)	31
Farm- and home-management advisors	83
Foresters and conservationists	48
Funeral directors and embalmers	59
Lawyers and judges	93
Librarians	60
Musicians and music teachers	52

Appendix A (Continued)

Occupations, by Major Occupation Group	Socio-economic Index
Natural scientists (n.e.c.)	80
Nurses, professional	46
Nurses, student professional	51
Optometrists	79
Osteopaths	96
Personnel and labor-relations workers	84
Pharmacists	82
Photographers	50
Physicians and surgeons	92
Radio operators	69
Recreation and group workers	67
Religious workers	56
Social and welfare workers, except group	64
Social scientists	81
Sports instructors and officials	64
Surveyors	48
Teachers (n.e.c.)	72
Technicians, medical and dental	48
Technicians, testing	53
Technicians (n.e.c.)	58
Veterinarians	78
Professional, technical and kindred workers (n.e.c.)	65
<u>Farmers and farm managers</u>	
Farmers (owners and tenants)	14
Farm managers	36
<u>Managers, officials, and proprietors, exc. farm</u>	
Buyers and department heads, store	72
Buyers and shippers, products	33
Conductors, railroad	58
Credit men	74
Floormen and floor managers, store	50
Inspectors, public administration	63
Federal public administration and postal service	72
State public administration	54
Local public administration	56
Managers and superintendents, building	32
Officers, pilots, pursers, and engineers, ship	54

Appendix A (Continued)

Occupations, by Major Occupation Group	Socio-economic Index
Officials and administrators (n.e.c.),	
public administration	66
Federal public administration and postal service	84
State public administration	66
Local public administration	54
Officials, lodge, society, union, etc.	58
Postmasters	60
Purchasing agents and buyers (n.e.c.)	77
Managers, officials and proprietors (n.e.c.)-	
salaried	68
Construction	60
Manufacturing	79
Transportation	71
Telecommunications, and utilities and	
sanitary services	76
Wholesale trade	70
Retail trade	56
Food- and dairy-products stores,	
and milk retailing	50
General merchandise and five- and ten-	
cent stores	68
Apparel and accessories stores	69
Furniture, home furnishings, and	
equipment stores	68
Motor vehicles and accessories retailing	65
Gasoline service stations	31
Eating and drinking places	39
Hardware, farm implement, and building	
material, retail	64
Other retail trade	59
Banking and other finance	85
Insurance and real estate	84
Business services	80
Automobile repair services and garages	47
Miscellaneous repair services	53
Personal services	50
All other industries (incl. not reported)	62
Managers, officials, and proprietors (n.e.c.)-	
self-employed	48
Construction	51
Manufacturing	61
Transportation	43
Telecommunications and utilities and	
sanitary services	44
Wholesale trade	59

Appendix A (Continued)

Occupations, by Major Occupation Group	Socio-economic Index
Retail trade	43
Food- and dairy-products stores, and milk retailing	33
General merchandise and five- and ten-cent stores	47
Apparel and accessories stores	65
Furniture, home furnishings, and equipment stores	59
Motor vehicles and accessories retailing	70
Gasoline service stations	33
Eating and drinking places	37
Hardware, farm implement, and building material, retail	61
Other retail trade	59
Banking and other finance	85
Insurance and other real estate	76
Business services	67
Automobile repair services and garages	36
Miscellaneous repair services	34
Personal services	41
All other industries	49

Clerical and kindred workers

Agents (n.e.c.)	68
Attendants and assistants, library	44
Attendants, physician's and dentist's office	38
Baggagemen, transportation	24
Bank tellers	52
Bookkeepers	51
Cashiers	44
Collectors, bill and account	39
Dispatchers and starters, vehicle	40
Express messengers and railway mail clerks	67
Mail-carriers	53
Messengers and office boys	28
Office-machine operators	45
Shipping and receiving clerks	22
Stenographers, typists, and secretaries	61
Telegraph messengers	22
Telegraph operators	47
Telephone operators	45
Ticket, station, and express agents	60
Clerical and kindred workers (n.e.c.)	44

Appendix A (Continued)

Occupations, by Major Occupation Group	Socio-economic Index
<u>Sales Workers</u>	
Advertising agents and salesmen	66
Auctioneers	40
Demonstrators	35
Hucksters and peddlers	8
Insurance agents and brokers	66
Newsboys	27
Real-estate agents and brokers	62
Stock and bond salesmen	73
Salesmen and sales clerks (n.e.c.)	47
Manufacturing	65
Wholesale trade	61
Retail trade	39
Other industries (incl. not reported)	50
<u>Craftsmen, foremen, and kindred workers</u>	
Bakers	22
Blacksmiths	16
Boilermakers	33
Bookbinders	39
Brickmasons, stonemasons, and tile-setters	27
Cabinetmakers	23
Carpenters	19
Cement and concrete finishers	19
Compositors and typesetters	52
Cranemen, derrickmen, and hoistmen	40
Decorators and window-dressers	40
Electricians	44
Electrotypers and stereotypers	55
Engravers, except photoengravers	47
Excavating, grading, and road-machinery operators	24
Foremen (n.e.c.)	49
Construction	40
Manufacturing	53
Metal industries	54
Machinery, including electrical	60
Transportation equipment	66
Other durable goods	41
Textiles, textile products, and apparel	39
Other nondurable goods (incl. not specified mfg.)	53
Railroads and railway express service	45
Transportation, except railroad	45

Occupations, by Major Occupation Group	Socio-economic Index
Telecommunications, and utilities and Sanitary services	56
Other industries (incl. not reported)	44
Forgemen and hammermen	23
Furriers	39
Glaziers	26
Heat treaters, annealers, and temperers	22
Inspectors, scalers, and graders, log and lumber	23
Inspectors (n.e.c.)	41
Construction	46
Railroads and railway express service	41
Transport, exc. r.r., communication, and other public util.	45
Other industries (incl. not reported)	38
Jewelers, watchmakers, goldsmiths, and silversmiths	36
Job-setters, metal	28
Linemen and servicemen, telegraph, telephone, and power	49
Locomotive engineers	58
Locomotive firemen	45
Loom fixers	10
Machinists	33
Mechanics and repairmen	25
Airplane	48
Automobile	19
Office machine	36
Radio and television	36
Railroad and car shop	23
Not elsewhere classified	27
Millers, grain, flour, feed, etc.	19
Millwrights	31
Molders, metal	12
Motion-picture projectionists	43
Opticians, and lens grinders and polishers	39
Painters, construction and maintenance	16
Paperhangers	10
Pattern- and model-makers, except paper	44
Photoengravers and lithographers	64
Piano and organ tuners and repairmen	38
Plasterers	25
Plumbers and steam-fitters	34
Pressmen and plate printers, printing	49
Rollers and roll hands, metal	22
Roofers and slaters	15
Shoemakers and repairers, except factory	12
Stationary engineers	47

Appendix A (Continued)

Occupations, by Major Occupation Group	Socio-economic Index
Stone-cutters and stone-carvers	25
Structural-metal workers	34
Tailors and tailoresses	23
Tinsmiths, coppersmiths, and sheet-metal workers	33
Toolmakers, and die-makers and setters	50
Upholsterers	22
Craftsmen and kindred workers (n.e.c.)	32
Members of the armed forces	18
<u>Operative and kindred workers</u>	
Apprentices	35
Auto mechanics	25
Bricklayers and masons	32
Carpenters	31
Electricians	37
Machinists and toolmakers	41
Mechanics, except auto	34
Plumbers and pipe-fitters	33
Building trades (n.e.c.)	29
Metalworking trades (n.e.c.)	33
Printing trades	40
Other specified trades	31
Trade not specified	39
Asbestos and insulation workers	32
Attendants, auto service and parking	19
Blasters and powdermen	11
Boatmen, canalmen and lock-keepers	24
Brakemen, railroad	42
Bus-drivers	24
Chainmen, rodmen, and axmen, surveying	25
Conductors, bus and street railway	30
Deliverymen and routemen	32
Dressmakers and seamstresses, except factory	23
Dyers	12
Filers, grinders, and polishers, metal	22
Fruit, nut, and vegetable graders and packers, exc. factory	10
Furnacemen, smeltermen, and pourers	18
Heaters, metal	29
Laundry and dry-cleaning operatives	15
Meat-cutters, except slaughter and packing house	29
Milliners	46
Mine operatives and laborers (n.e.c.)	10
Coal mining	2
Crude petroleum and natural gas extraction	38
Mining and quarrying, except fuel	12

Appendix A (Continued)

Occupations, by Major Occupation Group	Socio-economic Index
Motormen, mine, factory, logging camp, etc.	3
Motormen, street, subway, and elevated railway	34
Oilers and greasers, except auto	15
Painters, except construction and maintenance	18
Photographic-process workers	42
Power-station operators	50
Sailors and deck hands	16
Sawyers	5
Spinners, textile	5
Stationary firemen	17
Switchmen, railroad	44
Taxicab-drivers and chauffeurs	10
Truck- and tractor-drivers	15
Weavers, textile	6
Welders and flame-cutters	24
<u>Operatives and kindred workers (n.e.c.)</u>	
Manufacturing	18
Durable goods	17
Sawmills, planing mills, and misc. wood products	7
Sawmills, planing mills, and mill work	7
Miscellaneous wood products	9
Furniture and fixtures	9
Stone, clay, and glass products	17
Glass and glass products	23
Cement; and concrete, gypsum; and plaster products	10
Structural clay products	10
Pottery and related products	21
Misc. nonmetallic mineral and stone products	15
Metal industries	16
Primary metal industries	15
Blast furnaces, steel works, and rolling mills	17
Other primary iron and steel industries	12
Primary nonferrous industries	15
Fabricated metal ind. (incl. not spec. metal)	16
Fabricated steel products	16
Fabricated nonferrous metal products	15
Non specified metal industries	14
Machinery, except electrical	22
Agricultural machinery and tractors	21
Office and store machines and devices	31
Miscellaneous machinery	22
Electrical machinery, equipment, and supplies	26

Appendix A (Continued)

Occupations, by Major Occupation Group	Socio-economic Index
Transportation equipment	23
Motor vehicles and motor vehicle equipment	21
Aircraft and parts	34
Ship and boat building and repairing	16
Railroad and misc. transportation equipment	23
Professional and photographic equipment and watches	29
Professional equipment and supplies	23
Photographic equipment and supplies	40
Watches, clocks, and clockwork-operated devices	28
Miscellaneous manufacturing industries	16
Nondurable goods	
Food and kindred products	16
Meat products	16
Dairy products	22
Canning and preserving fruits, vegetables, and sea foods	9
Grain-mill products	14
Bakery products	15
Confectionery and related products	12
Beverage industries	19
Misc. food preparations and kindred products	11
Not specified food industries	19
Tobacco manufacturers	2
Textile mill products	6
Knitting mills	21
Dyeing and finishing textiles, exc. knit goods	8
Carpets, rugs, and other floor coverings	14
Yarn, thread, and fabric mills	2
Miscellaneous textile mill products	10
Apparel and other fabricated textile products	21
Apparel and accessories	22
Miscellaneous fabricated textile products	17
Paper and allied products	19
Pulp, paper, and paperboard mills	19
Paperboard containers and boxes	17
Miscellaneous paper and pulp products	19
Printing, publishing and allied industries	31
Chemicals and allied products	20
Synthetic fibers	9
Drugs and medicines	26
Paints, varnishes, and related products	15
Miscellaneous chemicals and allied products	23
Petroleum and coal products	51
Petroleum refining	56
Miscellaneous petroleum and coal products	14

Appendix A (Continued)

Occupations, by Major Occupation Group	Socio-economic Index
Rubber products	22
Leather and leather products	16
Leather: tanned, curried, and finished	10
Footwear, except rubber	9
Leather products, except footwear	14
Not specified manufacturing industries	16
Nonmanufacturing industries (incl. not reported)	18
Construction	18
Railroads and railway express service	15
Transportation, except railroad	23
Telecommunications, and utilities and sanitary services	21
Wholesale and retail trade	17
Business and repair services	19
Personal services	11
Public administration	17
All other industries (incl. not reported)	20
<u>Private household workers</u>	
Housekeepers, private household	19
Living in	10
Living out	21
Laundresses, private household	12
Living in	-
Living out	12
Private-household workers (n.e.c.)	7
Living in	12
Living out	6
<u>Service workers, except private household</u>	
Attendants, hospital and other institution	13
Attendants, professional and personal service (n.e.c.)	26
Attendants, recreation and amusement	19
Barbers, beauticians, and manicurists	17
Bartenders	19
Boarding- and lodging-house keepers	30
Bootblacks	8
Charwomen and cleaners	10
Cooks, except private household	15
Counter and fountain workers	17
Elevator operators	10
Firemen, fire protection	37
Guards, watchmen, and doorkeepers	18

Appendix A (Continued)

Occupations, by Major Occupation Group	Socio-economic Index
Housekeepers and stewards, except private household	31
Janitors and sextons	9
Marshals and constables	21
Midwives	37
Policemen and detectives	39
Government	40
Private	36
Porters	4
Practical nurses	22
Sheriffs and bailiffs	34
Ushers, recreation and amusement	25
Waiters and waitresses	16
Watchmen (crossing) and bridge-tenders	17
Service workers, except private household (n.e.c.)	11
<u>Farm laboreres and foremen</u>	
Farm foremen	20
Farm laborers, wage workers	6
Farm-service laborers, self-employed	22
Laborers, except farm and mine	
Fishermen and oystermen	10
Garage laboreres, and car-washers and greasers	8
Gardeners, except farm, and groundskeepers	11
Longshoremen and stevedores	11
Lumbermen, raftsmen, and wood-choppers	4
Teamsters	8
<u>Laborers (n.e.c.)</u>	
Manufacturing	8
Durable goods	
Sawmills, planing mills, and misc. wood products	3
Sawmills, planing mills, and mill work	3
Miscellaneous wood products	2
Furniture and fixtures	5
Stone, clay, and glass products	7
Glass and glass products	14
Cement; and concrete, gypsum, and plaster prod.	5
Structural clay products	5
Pottery and related products	7
Misc. nonmetallic mineral and stone products	5

Appendix A (Continued)

Occupations, by Major Occupation Group	Socio-economic Index
Metal industries	7
Primary metal industries	7
Blast furnaces, steel works, and rolling mills	9
Other primary iron and steel industries	4
Primary nonferrous industries	6
Fabricated metal ind. (incl. not spec. metal)	7
Fabricated steel products	7
Fabricated nonferrous metal products	10
Not specified metal industries	9
Machinery, except electrical	11
Agricultural machinery and tractors	14
Office and store machines and devices	17
Miscellaneous machinery	10
Electrical machinery, equipment, and supplies	14
Transportation equipment	11
Motor vehicles and motor vehicle equipment	13
Aircraft and parts	15
Ship and boat building and repairing	2
Railroad and misc. transportation equipment	8
Professional and photographic equipment, and watches	11
Professional equipment and supplies	10
Photographic equipment and supplies	16
Watches, clocks, and clockwork-operated devices	-
Miscellaneous manufacturing industries	12
Nondurable goods	
Food and kindred products	9
Meat products	8
Dairy products	13
Canning and preserving fruits, veget., and sea foods	6
Grain-mill products	6
Bakery products	10
Confectionery and related products	10
Beverage industries	16
Misc. food preparations and kindred products	5
Not specified food industries	14
Tobacco manufacturing	0
Textile mill products	3
Knitting mills	4
Dyeing and finishing textiles, exc. knit goods	9
Carpets, rugs and other floor coverings	14
Yard, thread, and fabric mills	1
Miscellaneous textile-mill products	6

Appendix A (Continued)

Occupations, by Major Occupation Group	Socio- economic Index
Apparel and other fabricated textile products	9
Apparel and accessories	11
Miscellaneous fabricated textile products	6
Paper and allied products	7
Pulp, paper, and paperboard mills	6
Paperboard containers and boxes	10
Miscellaneous paper and pulp products	8
Printing, publishing, and allied industries	23
Chemicals and allied products	8
Synthetic fibers	4
Drugs and medicines	22
Paints, varnishes, and related products	8
Miscellaneous chemicals and allied products	8
Petroleum and coal products	22
Petroleum refining	26
Miscellaneous petroleum and coal products	3
Rubber products	12
Leather and leather products	6
Leather: tanned, curried, and finished	2
Footwear, except rubber	10
Leather products, except footwear	12
Not specified manufacturing industries	8
Nonmanufacturing industries (incl. not reported)	7
Construction	7
Railroads and railway express service	3
Transportation, except railroad	9
Telecommunications, and utilities and sanitary services	6
Wholesale and retail trade	12
Business and repair services	9
Personal services	5
Public administration	7
All other industries (incl. not reported)	6
<u>Occupations not reported</u>	19

APPENDIX B

Appendix B

Instructions

This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives lettered a or b. Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you're concerned. Be sure to select the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief: Obviously there are no right or wrong answers.

Please answer these items carefully but do not spend too much time on any one item. Be sure to find an answer for every choice. In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select the one you more strongly believe to be the case as far as you're concerned. Also try to respond to each item independently when making your choice; do not try to be influenced by your previous choice.

Please do not write on the question sheets. Your answers to the items on this questionnaire are to be recorded on a separate answer sheet which is provided along with the questionnaire.

- 1.a. Children get into trouble because their parents punish them too much.
- b. The trouble with most children nowadays is that their parents are too easy with them.
- 2.a. Many of the unhappy things in people's lives are partly due to bad luck.
- b. People's misfortunes result from the mistakes they make.
- 3.a. One of the major reasons why we have wars is because people don't take enough interest in politics.
- b. There will always be wars, no matter how hard people try to prevent them.
- 4.a. In the long run people get the respect they deserve in this world.
- b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

Appendix B (Continued)

- 5.a. The idea that teachers are unfair to students is nonsense.
- b. Most students don't realize the extent to which their grades are influenced by accidental happenings.
- 6.a. Without the right breaks one cannot be an effective leader.
- b. Capable people who fail to become leaders have not taken advantage of their opportunities.
- 7.a. No matter how hard you try some people just don't like you.
- b. People who can't get others to like them don't understand how to get along with others.
- 8.a. Heredity plays the major role in determining one's personality.
- b. It is one's experiences in life which determine what they're like.
- 9.a. I have often found that what is going to happen will happen.
- b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
- 10.a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
- b. Many times exam questions tend to be so unrelated to course work that studying is really useless.
- 11.a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.
- b. Getting a good job depends mainly on being in the right place at the right time.
- 12.a. The average citizen can have an influence in government decisions.
- b. This world is run by the few people in power, and there is not much the little guy can do about it.
- 13.a. When I make plans, I am almost certain that I can make them work.
- b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune.
- 14.a. There are certain people who are just no good.
- b. There is some good in everybody.

Appendix B (Continued)

- 15.a. In my case getting what I want has little or nothing to do with luck.
 - b. Many times we might just as well decide what to do by flipping a coin.
- 16.a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
 - b. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.
- 17.a. As far as world affairs are concerned, most of us are victims of forces we can neither understand, nor control.
 - b. By taking an active part in political and social affairs the people can control world events.
- 18.a. Most people don't realize the extent to which their lives are controlled by accidental happenings.
 - b. There is really no such thing as luck.
- 19.a. One should always be willing to admit mistakes.
 - b. It is usually best to cover up one's mistakes.
- 20.a. It is hard to know whether or not a person really likes you.
 - b. How many friends you have depends on how nice a person you are.
- 21.a. In the long run the bad things that happen to us are balanced by good ones.
 - b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.
- 22.a. With enough effort we can wipe out political corruption.
 - b. It is difficult for people to have much control over the things politicians do in office.
- 23.a. Sometimes I can't understand how teachers arrive at the grades they give.
 - b. There is a direct connection between how hard I study and the grades I get.
- 24.a. A good leader expects people to decide for themselves what they should do.
 - b. A good leader makes it clear to everybody what their jobs are.

Appendix B (Continued)

- 15.a. In my case getting what I want has little or nothing to do with luck.
- b. Many times we might just as well decide what to do by flipping a coin.
- 16.a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
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Appendix B (Continued)

- 25.a. Many times I feel that I have little influence over the things that happen to me.
- b. It is impossible for me to believe that chance or luck plays an important role in my life.
- 26.a. People are lonely because they don't try to be friendly.
- b. There's not much use in trying too hard to please people, if they like you, they like you.
- 27.a. There is too much emphasis on athletics in high school.
- b. Team sports are an excellent way to build character.
- 28.a. What happens to me is my own doing.
- b. Sometimes I feel that I don't have enough control over the direction my life is taking.
- 29.a. Most of the time I can't understand why politicians behave the way they do.
- b. In the long run the people are responsible for bad government on a national as well as on a local level.

APPENDIX C

Appendix C

Answer Sheet

NAME	_____			HOMEROOM TEACHER	_____
	Last	First	Middle		
GRADE	<input type="checkbox"/> Ninth <input type="checkbox"/> Tenth <input type="checkbox"/> Eleventh			ETHNIC BACKGROUND	<input type="checkbox"/> Black <input type="checkbox"/> White <input type="checkbox"/> Mexican-American <input type="checkbox"/> Other _____
SEX	<input type="checkbox"/> Male <input type="checkbox"/> Female				Specify

The following questions apply to the head of your household; father, mother, guardian, or other adult with whom you reside:

Where does he (she) work? _____

What does he (she) do? _____

What is the name of his (her) job? _____

	a	b		a	b		a	b
1.	<input type="checkbox"/>	<input type="checkbox"/>	11.	<input type="checkbox"/>	<input type="checkbox"/>	21.	<input type="checkbox"/>	<input type="checkbox"/>
2.	<input type="checkbox"/>	<input type="checkbox"/>	12.	<input type="checkbox"/>	<input type="checkbox"/>	22.	<input type="checkbox"/>	<input type="checkbox"/>
3.	<input type="checkbox"/>	<input type="checkbox"/>	13.	<input type="checkbox"/>	<input type="checkbox"/>	23.	<input type="checkbox"/>	<input type="checkbox"/>
4.	<input type="checkbox"/>	<input type="checkbox"/>	14.	<input type="checkbox"/>	<input type="checkbox"/>	24.	<input type="checkbox"/>	<input type="checkbox"/>
5.	<input type="checkbox"/>	<input type="checkbox"/>	15.	<input type="checkbox"/>	<input type="checkbox"/>	25.	<input type="checkbox"/>	<input type="checkbox"/>
6.	<input type="checkbox"/>	<input type="checkbox"/>	16.	<input type="checkbox"/>	<input type="checkbox"/>	26.	<input type="checkbox"/>	<input type="checkbox"/>
7.	<input type="checkbox"/>	<input type="checkbox"/>	17.	<input type="checkbox"/>	<input type="checkbox"/>	27.	<input type="checkbox"/>	<input type="checkbox"/>
8.	<input type="checkbox"/>	<input type="checkbox"/>	18.	<input type="checkbox"/>	<input type="checkbox"/>	28.	<input type="checkbox"/>	<input type="checkbox"/>
9.	<input type="checkbox"/>	<input type="checkbox"/>	19.	<input type="checkbox"/>	<input type="checkbox"/>	29.	<input type="checkbox"/>	<input type="checkbox"/>
10.	<input type="checkbox"/>	<input type="checkbox"/>	20.	<input type="checkbox"/>	<input type="checkbox"/>			

APPENDIX D

APPENDIX D

[illegible]