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PEER RELATIONS AND ACADEMIC ACHIEVEMENT

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

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<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.  INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>II. SURVEY OF RELATED LITERATURE</td>
<td>4</td>
</tr>
<tr>
<td>III. METHODOLOGY</td>
<td>19</td>
</tr>
<tr>
<td>IV. FINDINGS</td>
<td>24</td>
</tr>
<tr>
<td>V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS</td>
<td>39</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>44</td>
</tr>
</tbody>
</table>
LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Correlations and Significance Levels between All of the Variables in the Study</td>
<td>27</td>
</tr>
<tr>
<td>2. Correlations and Significance Levels between Discrepancy Scores and All of the Variables in the Study</td>
<td>29</td>
</tr>
<tr>
<td>3. Over- and Under-achievement Correlated with Peer Popularity and Acceptance among the High Intelligence Group</td>
<td>31</td>
</tr>
<tr>
<td>4. Over- and Under-achievement Correlated with Peer Popularity and Acceptance among the Average Intelligence Group</td>
<td>32</td>
</tr>
<tr>
<td>5. Over- and Under-achievement Correlated with Peer Popularity and Acceptance among the Low Intelligence Group</td>
<td>32</td>
</tr>
<tr>
<td>6. Over- and Under-achievement Correlated with Peer Acceptance among Groups of Varying Popularity</td>
<td>34</td>
</tr>
<tr>
<td>7. Etas versus Pearson r's for the Main Variables of the Study</td>
<td>35</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

Recently much research has been done on various factors that influence academic achievement. In addition to studying the relation between intelligence and aptitude tests and marks in school, certain non-intellective factors have been investigated such as parental influences, various personality variables, study habits, attitudes toward school and teachers, etc. A factor that has seldom been investigated has been the relationship between peer popularity and academic achievement. In so far as this relationship has been investigated, conflicting results have been found. It would certainly seem that the attitudes of the student body and in particular one's peers in home room and in various courses taken could influence the achievement of any student.

The main purpose of this study was to investigate the degree of relationship between peer popularity and acceptance and academic over- and under-achievement. For the purpose of the study, discrepancy between one's rank based on intelligence and school marks was the criterion for over- and under-achievement.

The hypothesis of the study was that popular students would achieve better academically than equally intelligent students who are not as popular. It seems logical to assume that the student who knows he is accepted by his peers would not spend as much time brooding about
what he could do to improve his status. A further possibility to be investigated in this study is that there is a tendency to spend too much time in cultivating peer popularity to the detriment of one's studies. Thus it would seem possible that up to a certain point peer popularity might go hand in hand with academic achievement, but that beyond this point the relationship no longer holds.

In addition to the problem posed by the main hypothesis, another question investigated was the relationship between intelligence and peer popularity. Many studies in the past have neglected the possible contaminating effect of intelligence in the relationship between academic achievement and peer popularity. Since intelligence is related to academic achievement (57), if it is also found to be related to peer popularity, it must be partialed out of any relationship between peer popularity and academic achievement.

The instruments used to determine peer popularity and acceptance in this study were the Syracuse Scales of Social Relations (63). It is one of the most recent in a long line of improvements in sociometric techniques which have given us an excellent way of investigating the structure of school society.

The importance of academic under-achievement can not be stressed too much, especially among gifted children. Many students lack motivation to do work that will allow them to be accepted into college and others who could qualify do not bother to apply. Studies have indicated that ten to forty percent of our intellectually gifted students are under-achievers. The wasted manpower is detrimental to society and in addition, the challenge the individual misses from failure to exercise
his abilities at their best level is disheartening. The under-achiever after a number of years of following his pattern of achieving poorer grades than he is capable of, comes to think of himself as incapable of creative and productive work and resigns himself to boring, uninteresting routines (46). Other under-achievers simply are not even interested in trying. Any information about variables related to under-achievement should be sought out and that information could then be applied to help solve the problem. The goal of this study was to investigate one of the possible variables--peer relations.
CHAPTER II

SURVEY OF RELATED LITERATURE

In recent years, many attempts have been made to relate various non-intellective factors to achievement in school. An especially large group of investigators has been concerned with highly gifted under-achievers but in addition over-achievers have also been studied, although not so extensively. Many variables have been considered in addition to the variable of peer relationships which is the concern of the present study. Some of the most common variables that have been considered are aspects of personality as measured by structured and unstructured personality tests such as n-achievement, order, affiliation, etc. Other investigations have looked at factors such as anxiety, parent-child interactions, discipline, size and type of school, number of siblings, ethnic background, study habits, etc. Following are some representative findings in some of the above mentioned areas.

Borow (7) found six non-intellectual factors related to academic achievement but not to aptitude. They were (1) curricular adjustment, (2) maturity of goals and level of aspiration, (3) personal efficiency, (4) study skills and practices, (5) mental health, and (6) personal relationships. Bresee (8) reported that under-achievers were more hostile, were less altruistic, and had fewer long range goals. They also identified less with friends, family and community. Wedemeyer (65) found that gifted under-achievers had more emotional maladjustments and
conflicting motives than did gifted achievers and that in addition they were frequently employed excessively on work outside of school. Vernon (64) reported that achieving students tend to be more tense, dependable, and less likely to be depressed or emotionally unstable than their non-achieving counterparts. They also can concentrate better. Stoner (62) noted that high school under-achievers were more inhibited, resentful, stubborn, and unambitious as measured by The California Psychological Inventory. They also had more reading handicaps than did a matched group of achievers. Sorenson (60) found that bright passing college students had better social adjustment in school and family and were more conforming. Their bright failing counterparts engaged in fewer extracurricular activities and were more shy. No differences were found between the two groups in amount of time spent in studying. Shaw and Brown (59) observed in their sample of under-achieving bright college students an attitude of hypercriticalness and a feeling of not having the material things in life that they desired. They tended to come from less populated areas and carry lighter academic loads than did the achieving group. The parents of the achievers tended to have more education. No significant differences were found in the results on The Cooperative Achievement Test scores despite the differences in marks, nor were there any differences in reading ability. Likewise, no differences were found on The Bell Adjustment Inventory or The Allport-Vernon Lindsey Study of Values. Russell (55) found that motivation, physical and mental health, personal and social relationships with parents, fellow students and faculty were all important to successful achievement
in college. Independent living and self-direction were also found to be important. Owens and Johnson (49) measured personality traits of collegiate under-achievers and found them to be "too" socially oriented. They spent too much time socializing and not enough at solitary study. They were well adjusted in some areas but not in family relationships and neurotic psychotic tendencies. Northway and Wigdor (47) used Rorschach responses of high sociometric status children to show that they were less impulsive, moody, and egocentric. They showed greater sensitivity about the feelings of others and a conscious striving for the approval of others. Middleton and Guthrie (43), through factor analysis, isolated the following factors in the personality syndrome of high achievers: (1) drive for power, (2) resentment, (3) dependence, (4) social acceptance, and (5) aggression. Low achievers were characterized by pleasure seeking, extroversion, denial of shortcomings and power. Gough (23) devised a personality scale from The MMPI and other sources with which he attempted to predict scholastic achievement. He reported a correlation of .38 between his test and undergraduate grades. Burgess (9) studied personality factors of over- and under-achieving engineers and found the former to be less labile in their affection. They also had a greater need for achievement and for self-improvement and status. They used their time more efficiently. The under-achievers were found to establish rapport in social situations more easily, but were more dependent toward others. Their school attitudes were poorer and they felt pressured to remain in school. Calhoun (10) counseled a group of eighth-grade under-achievers to see what effect this would have on grades. The experimental group had significantly better grades and
were rated by their teachers as having more interest in their work. They scored higher, although not significantly so, on a later achievement test given that year. Under-achievement was defined as a certain discrepancy between scores on achievement tests and group mental tests, although more typically in such studies the dependent variable is marks. In a study comparing under-achievers with normals, Armstrong (3) found that under-achievers were less independent in choosing an occupation and that their occupational goals conflicted more often with results on the Kuder Preference Record. They rated lower on the computation scale of the Kuder and were rated by teachers as being less cooperative and dependable and as having poorer judgment. The girls were chosen less frequently for positions of responsibility. Chambers (12) found scholastic success (marks) to be related to empathy but this was not true of intelligence.

Various investigations have studied the effects of anxiety on scholastic achievement. Alpert and Haber (1) reported that specific anxiety tests such as The Taylor Manifest Anxiety Scale gave better results when combined with verbal aptitude in predicting grades than did more general tests of anxiety like The Mandler-Sarason Test Anxiety Questionnaire. The authors devised an anxiety test of their own which had both facilitating and debilitating portions which when combined with verbal aptitude gave a substantial multiple R for prediction purposes. Phillips, Hindsman and McGuire (53) found that factors associated with anxiety as measured by The Children's Manifest Anxiety Scale correlated highly with achievement and grades. Kitano (38) found that high anxiety
and rigidity of emotionally disturbed and behavior problem children may lead to spelling errors due to refusals and unrecognizable spelling.

Earp (18) found that smokers of comparable intelligence had reliably lower grades.

Many studies have been made of the relationship of attitudinal or motivational factors to achievement. Following are some of the more typical ones. Cohen (13) found that for a group of students who were predicted to succeed but got straight failing marks, that this seemed to be purposeful, planned activity. They simply lacked motivation to succeed. Weitz et al. (66) noted that having chosen a major sequence of study before entering college had a highly motivating effect on students' performance. Mallory and Alzendam (41) found correlations ranging from .35 to .41 between enjoyment of course and amount of interest in course and the amount of work put forth. They also found a correlation of .33 between enjoyment of the course and marks in it. Ames (2) found that persistence, common sense, and dependability correlated about as highly with achievement as did intelligence as measured by The Otis Test of Mental Ability. He found the correlation between The Otis and achievement to be .54 ± .05. The multiple R with persistence and attitude toward school added to The Otis correlated .71 with scholastic achievement. Ames also found the ability to conform to the school situation to be related to achievement but not the ability to succeed socially. Dowd (15) reported more under-achieving students of high capacity to have occupational goals inconsistent with their measured interests. These students tended not to like their courses or their teachers. They also
tended to have poorer study habits and studied fewer hours. The under-achievers scored lower on The Cooperative Reading Comprehension Test and also on The Mechanics of Expression part of the test, although they were above average college students in these areas. More men were found to be under-achievers than women and usually the pattern of under-achieving had been carried over at least from high school if not junior high or grade school. No differences were found between the achievers and non-achievers in amount of extracurricular activities engaged in, amount of part-time employment, size of high school graduating class or on variables on The Bernreuter Personality Inventory, Bell Adjustment Inventory or Minnesota Multiphasic Personality Inventory. Drasgow (16) felt that one of the factors in under-achievement in his sample was poor curriculum choice, but Motto (45) did not agree and felt instead that under-achievement was a behavioral manifestation of personality inconsistencies. He also stressed the need for clarifying what is meant by under-achievement which the present author will mention later in this summary.

Various studies have also been done relating home environment to scholastic achievement. Weitz and Wilkinson (67) found that children from multiple child families did significantly better in college marks than only children matched with them on the American Council on Education Psychological Examination and intelligence tests. Military academy graduates did significantly poorer than graduates of public schools. Students from private schools did poorer than students from public schools, but not significantly so. Children from divorced parents or children with one dead parent did poorer than those not similarly handicapped, but once again not significantly so. If a student had two
of these handicaps (i.e., came from a divorced family and went to a military school) his school marks were usually even poorer. Ratchick (54) found under-achievers' mothers to have gone to college less often and they read less. The under-achievers were absent from school more and had poorer adjustment at home, in school, in health and emotionally as shown by The Mooney Problem Check List and The Bell Adjustment Inventory. Phelps (52) reported high school under-achievers to have more siblings, more ill health, and to spend less time in homework and school-connected activities. Fewer under-achievers planned to attend college. Pearlman (51) found superior college achievers as contrasted with superior under-achievers to be more well rounded in extracurricular activities except in competitive physical exercise. Their fathers and mothers had more advanced studies. Male achievers had more research and intellectual interests as shown on The Kuder Preference Record. The under-achievers had more manual and persuasive interests. No differences were found in health, family size, number of siblings, or intactness of family structure. Paterson (50) found that high achievers (not over-achievers) spent significantly more time reading and studying than did regular or low achievers. They also spent significantly more time in indoor play and activity. No significant differences were found in television watching, chores, outside activities or religious activities. Strodtbeck (42) noted that the occupational and educational expectations of the family had relevance to the offsprings' achievement structure. Dominant fathers tended to produce sons with low achievement values. The opposite was found to be true with dominant mothers. Kurtz and Swenson (40) found that over-achievers' parents take more interest in their children and
left them alone less often. Especially significant was the fact that
over-achievers chose friends who were interested in school. Over-
achievers are happier, have more self-confidence, like reading and school.
Non-achievers seek pleasure and like to tinker with things. Holtzman,
Brown and Farquhar (30) developed an instrument called The Survey of
Study Habits and Attitudes which correlated from .27 to .66 with grades
for men and about the same for women. Since it correlated only from .13
to .48 with The American Council on Education Psychological Examination,
they feel it measures something different than a standardized college
entrance examination. Gerberich (22) studied factors related to college
achievement in high aptitude students who fail expectations and low
aptitude ones who exceed expectation. He found that low scholarship
groups could not pay attention in class, had poorer study techniques,
were fraternity or sorority pledges more often and participated more in
freshman or intramural football. The high achievers on the other hand
had good places to study and spent more time eating, sleeping and study-
ing. In addition they liked their instructors more, had less extra
class activities and participated in freshman basketball more often.
The size of high school attended was studied by Dwyer (17) who found that
students from small schools were not as likely to succeed in college.
Over-achieving and under-achieving students at Arkansas University were
studied by Diener (14). He found more over-achievers to live in
dormitories compared with under-achievers who lived more frequently in
fraternity houses. Over-achievers were more orderly and had better
study habits. Under-achievers had more interest in the artistic area on
The Kuder Vocational Preference Record.
A few studies in addition to the present study have attempted to relate scholastic achievement and peer popularity. In some cases the confounding effect of intelligence has not been partialled out. Many studies have been made on the relation between intelligence and achievement and also the relationship of intelligence and popularity. Hollingsworth (29) found that individuals who deviate widely from the mean in intelligence tend to become personality isolates. Peer relationships of children of different intelligence levels were also studied by Barbe (4). He noted that bright children were more popular with the average child than were dull children. Bright children choose most of their friends from the intelligence range of 100 up, whereas dull children choose most of theirs from 110 on down. Bonney (5) studied the relationship of social status and intelligence in the second grade and found it to be small and not significant. In a later study by the same author (6), social acceptance, mutual friendships, intelligence, and academic achievement were found to be quite stable from year to year. Correlations between social acceptance and intelligence ran between .31 and .34. Correlations between social acceptance and Stanford Achievement total grade placement ran from .31 to .36. Thorndike and others have postulated three main types of intelligence—abstract, mechanical and social and it would seem that although relationships are low, they are positive and run together. When Bonney's sample was divided into the upper and lower fourths on social acceptance, wide differences were found in intelligence quotients and Stanford Achievement Test results. The differences became greater from grade to grade which seems to indicate that social success becomes more of a factor in achievement or that academic achievement
becomes more important to social acceptance. In another study Gallagher (21) found that social status was related to intelligence quotient. Bright children were also found to be more socially perceptive. An exponential relationship was found by Grossman and Wrighter (25) to exist between intelligence quotient and selection or rejection by their peers. A certain amount of intelligence (normality) was necessary for selection but beyond that it did not help. The same was found to be true of socioeconomic status (lower middle class was necessary). Rejectees were found to be more nervous and to have less feeling of belonging as measured by The California Personality Inventory. Correlations of only .01 to .39 were found to exist between intelligence quotients and social status by Howell (31). Likewise he found correlations of only .08 to .49 between social status and school marks. Jennings (32) found in The New York Training School for Girls that intelligence was not a factor in selection or rejection by peers. We must be cautious, of course, in generalizing from this sample. Heber (28) observed significant differences (P < .01) between a very high IQ group and an average group in social status in favor of the average group. Likewise the average group had significantly higher social status than the low IQ group. Also, contrary to Jones and Bayley's findings, which will shortly be quoted, he found physical maturity to be unrelated to social status.

Other variables have been investigated as possible factors in peer popularity besides intelligence, which has been discussed above. Slow maturers were rejected in a group studied by Jones and Bayley (36). Advanced maturers were found to be popular. Kuhlen and Bretsch (39) studied the responses of least accepted children on a problem check list.
These children were found to have more problems of both the often present and sometimes present kind. For problems that were often present, they checked such things as lack of social skills, unhappiness, lack of status, family problems and dislike of school. Sometimes present problems were health factors and the feeling of being unaccepted by their peers. The more accepted children checked their main problems as moral concerns, future education, and jobs and social activities. Religion and ethnic group membership were found by Moreno (44) to be important factors in choice by peers. Clique formation based on propinquity and other factors was also studied. Stahlecker (61) studied various handicapped children and found them to be less socially acceptable.

Earlier in this review, it was mentioned that intelligence could be a contaminating factor in the study of the relation between peer popularity and achievement. Although an association between intelligence and achievement is not disputed, a few studies will be cited. Edminston and Rhoades (19) found a correlation of .56 between school marks and the verbal part of the intelligence test used in their sample. Jex (34) found the correlation to be .46 between the L score on the American Council on Education Psychological Examination and average freshman grades at the University of Utah. The Q score correlated only .30 with the same criterion while the total score correlated .44 with the criterion. Ellison and Edgerton (20) found that the Verbal Test from Thurstone's Primary Mental Abilities correlated .44 with grades for liberal arts students at the Ohio State University and that the memory test had the second highest relationship to overall grades with a
correlation of .31. For specific courses, however, the various specific subtests correlated quite highly and also a multiple R for overall grades was found to be .64, using the best combinations of the various subtests. The median of over one hundred correlations that were run between general college scholarship and mental test scores was reported to be .44 by Segel (57).

Other studies, besides the present one, that investigated the relationship of peer popularity and scholastic achievement will now be considered. Edminston and Rhoades (19) found the correlation between school marks and sociometric status to be .56. Intelligence and marks were also correlated to the extent of .56 and sociometric status and intelligence were correlated .28. No partial correlations were run to take into account how much the relationship between marks and sociometric status might be influenced by intelligence. The authors got a multiple R for predicting marks from general achievement and sociometric status of .75. Hall and Gaeddert (27) found a correlation of .51 between their Friendship Rating Scale and college marks. A small positive correlation was found between social acceptance and grades by Ryan and Davie (56). The relation between the Q score on the American Council on Education Psychological Examination and social acceptance was even smaller and the correlation was found to be non-significant between the verbal portion of The ACE and social acceptance. There seemed to be slight evidence that an exponential relationship between grades and social acceptance exists. Semler (58) noted a linear relationship between The Otis Test of Mental Ability and The Ohio Social Acceptance Scale, with the correlation being .35. He found a curvilinear
relationship between scores on The Ohio Social Acceptance Scale scores and The Stanford Achievement Test. The Pearson $r$ was .39, but Eta was .71. Semler also found a correlation of .68 between two different measures of peer acceptance and in addition found high correlations between these and California Test of Personality scores and teacher ratings of adjustment. In a study by Young (69) each member of a high school freshman class rated as many classmates as he felt he knew well enough to rate reliably. No appreciable relation was found between scholarship and average popularity ratings received or given. In a study with gifted elementary school children by Williams (68), an Eta of .22 ($P < .05$) was found between academic performance as measured by the Stanford Achievement Test, Metropolitan Achievement Test and Metropolitan Readiness Test and social acceptance extended to the pupil by the class. However, Eta was .58 ($P < .01$) for the relationship between academic performance and social acceptance extended by the pupil to the class. More than four out of every five pupils high in total acceptance (acceptance of and by the class) were achieving within or beyond expectancy, whereas three out of every five low in total acceptance were achieving below expectancy. Case studies and additional tests were given to six high acceptees and six low acceptees and many more unfulfilled needs such as love and belongingness were found in the low acceptees. No appreciable differences were found in the intelligence quotients of high and low acceptees which contradicts many of the previously quoted studies, but we must remember that here we have a fairly homogeneous group in that all of them had high IQ's. In a study by Johnson (35), students rated well-liked students as being more
The correlation between popularity and perceived academic ability was .52 ($P < .01$) for a methods course group and .93 ($P < .01$) for a psychology class, whereas $r$ was .20 ($P > .05$) and .40 ($P > .05$) for the comparable classes between popularity and actual scholastic performance. Keislar (37) had matched groups of equally intelligent high school boys, one group having at least one letter grade higher average, and two comparable groups of girls. Using a Guess Who technique he found that the individuals in both groups (boys and girls) having higher school marks were rated higher by their peers on liking of school work, putting studies first and persistence. Less pronounced relations were found between school marks and considerateness (both sexes), being influential and friendly (girls) and inversely for conceit (boys). For boys there was little relation between school marks and social acceptability (friendliness, popularity with the opposite sex and being welcomed by the same sex). When the possibility of the relation being curvilinear was tested, $r_L$ was found to be just barely significant at the .05 level. Subsequent $t$ tests showed that those who received around C+ grades were rated higher on social acceptability than were those who had either a minimum of A- or a maximum of D+. For girls, the findings showed those with higher marks to be rated as more friendly and welcome although not significant at the .01 level. However, they were considered significantly less popular with boys.

Among the various correlates of low or under-achievement reported in the studies, the most commonly appearing ones were poor study skills, lack of long-ranged planning, "too" socially oriented, not enough time for study, dependency, poor interpersonal relations and poor mental
health. Under poor mental health such items were found as hostility, shyness, hypercriticalness, resentfulness, stubbornness, and lack of stability. The high achievers or over-achievers had none of the negative traits listed above and in addition were dependable and had parents who stressed education as well as being better educated themselves.

It would appear that some of the discrepancies in the findings of the various studies might be attributed to (1) lack of control of the intelligence variable as a factor in the relationship between peer popularity and academic achievement, (2) different ways of classifying over- and under-achievers, (3) differences in various samples such as gifted vs. total range of intelligence, different socioeconomic groups with different goals and values, etc., (4) different tests measure peer popularity in differing ways. Some use a measure of how happy the peers are with the individual and some vice versa. In addition, different people might be chosen as favorites or most popular by the same person depending on what category the choice was based on, e.g., with whom would you most like to go camping vs. with whom would you most like to do your homework?, (5) small samples in some studies which might have been unreliable or small, although significant, relationships among the variables in other samples, and (6) some groups where a much larger portion of the group was male or female. There seems to be definite differences in correlates of non-achievement in the two sexes.
CHAPTER III

METHODOLOGY

The sample consisted of five classes each of twelfth-grade students \((N = 122)\) and ninth-grade students \((N = 124)\). They were enrolled in Willis High School (about 550 students) in Delaware, Ohio, which is a relatively self-contained community of 12,000. The students were given The Syracuse Scales of Social Relations \((63)\) after about three months of the school year had elapsed. The Syracuse Scales of Social Relations allow each student to rate each of his classmates on the basis of how he fulfills certain of his specific psychological needs (succorance was used in this investigation). The scale has the advantage of utilizing a reference population that is personal to the individual pupil based on all the people the pupil has ever known. It is thus possible to compare the social relations status of different groups and of individuals in non-overlapping groups. The following is quoted from the manual of directions: "The following six types of scores are provided by the scales: (1) Individual ratings made by pupils. Each pupil rates each of his classmates as a possible companion in a social situation designed to reflect a specific psychological need. These ratings indicate how a given pupil regards each of his classmates. (2) Mid-score of ratings made. This score provides precise information about the way a pupil evaluates his classmates as a group. (3) Class average of mid-scores of ratings made. This score indicates how all
pupils as a group regard their classmates. It is a mean of all the pupils' mid-scores of ratings made. (4) Individual ratings received. Each pupil receives a rating from each of his classmates. These ratings indicate how a given pupil is regarded by each of his classmates. (5) Mid-score of ratings received. (6) Scores relating to cliques. These scores are combinations of individual ratings made and received and define groups of two or more members who are mutually attracted to each other for the satisfaction of a given need."

Recent results of intelligence tests and grades were available in the students' cumulative record folders. The freshmen had recently taken The California Test of Mental Maturity (11) and the seniors The Ohio State Psychological Examination (48). The total honor points for the previous school year (1959-60) were added allowing four for each A, three for each B, two for each C, one for each D, and 0 for each F. Non-academic subjects such as band, physical education, choir, etc., were not averaged in. A grade point average (G.P.A.) was then figured for each student by dividing the honor points by the number of subjects taken. Based on this information, correlations were run for each group (ninth- and twelfth-grades) between intelligence and G.P.A., G.P.A. and median score received by each pupil, intelligence and median score received by each pupil, intelligence and median score made by each pupil, G.P.A. and median score made by each pupil and finally median score received vs. median score made.

Discrepancies (difference between median score received and median score made) were then correlated with G.P.A. and also with intelligence.
Each student within each of the two classes was then ranked on grade point average and intelligence, and the discrepancy score was found between his rank on the intelligence test and on G.P.A. This discrepancy score which is a measure of under- or over-achievement was then correlated with median score made and also with median score received. This was the heart of the investigation . . . . to see what relation existed between peer popularity and ratings of how the pupil perceives his peers as satisfying his succorance need and over- or under-achievement.

The two discrepancy scores were then correlated with each other.

At this point, each class was divided into three equal groups based on intelligence. The upper third in the ninth grade had an IQ range of 111-140 on the California Test of Mental Maturity. The middle third had a range of 99-110 and the bottom group's range was 71-98. As the scores indicate, these ninth-grade pupils were somewhat above average on national norms, with a mean IQ of 104.3. The upper third in the twelfth grade had percentile ranks on The Ohio State Psychological Examination ranging from the 79th through the 100th. The middle third ranged from 45 to 78 and the lower third from 1 to 44. The mean was 57.9, which indicated that this group was also somewhat above national norms. Discrepancies between intelligence and G.P.A. were then correlated with ratings received and also with ratings made for each of the three groups—high, medium, and low intelligence. This was done to see whether there was a differential pattern of over- and under-achievement as related to peer popularity in the various ranges of intelligence.
Each class was then divided into three groups based on peer popularity. Those whose median score was 30 or above (63rd percentile and up for twelfth grade norms) were considered to be high. Those whose median score was 20 to 29 (31st to 62nd percentile for twelfth grade) were considered to be average in peer popularity and those whose median score was 10-19 (percentile rank of 6 to 30 for the twelfth grade) were considered to be low in popularity. Within each popularity group, the discrepancy between G.P.A. and intelligence was correlated with median score made. This was an attempt to see whether within groups of varying popularity, different feelings of having one's needs met by peers was manifested by under- and over-achieving youngsters.

As a sidelight to the main investigation, intelligence was investigated as a variable in choice of friends. Each class was divided into thirds based on intelligence as described above and each person's best friend (highest rating given on The Syracuse Scales) was recorded based on the intelligence group to which he belonged. The number of cliques that was formed within and outside of the three intelligence levels was also investigated. Chi squares were computed to see if any of the findings could be attributed to other than chance factors.

In addition, partial correlations were run to eliminate the effect of intelligence on the relationship between peer popularity and G.P.A. Eta was computed in addition to Pearson-product-moment correlation coefficients on many of the variables to see if the relationship between them was curvilinear instead of linear.

The reliability of the three primary instruments used in this study was examined and found to be satisfactory although in some cases
not quite as high as one might ideally like. The reliability coefficients of the various subtests of The California Test of Mental Maturity and The Ohio State Psychological Examination were in the .80's and .90's. The reliability coefficients for the various groups on the Syracuse Scales of Social Relations were mostly in the .70's and .80's which is satisfactory for an instrument that measures peer relationships. However, a few of the coefficients were only in the high .50's and .60's.

It was interesting to note the normative data of the two samples of students used. As was mentioned, the mean intelligence test scores were above national average for both ninth- and twelfth-graders. The average score made on the Syracuse Scales of Social Relations for all ninth-graders was 21.8. For twelfth-graders the average score made was 25.6 which was almost at the 44th percentile on national norms. It was interesting to note that girls tended to make and receive considerably higher ratings (usually five to seven points higher). The girls tended to over-achieve as a group while the boys tended to under-achieve. In fact, significantly (.05 level based on \( \chi^2 \)) more boys were under-achievers than would be predicted by chance happening. There were 39 over-achieving and 66 under-achieving boys in the combined ninth- and twelfth-grade populations.
CHAPTER IV

FINDINGS

The first set of correlations that were run were for ninth-graders correlating intelligence as measured by The California Test of Mental Maturity with scholastic achievement as measured by grades. As was mentioned earlier, this class was above national average in intelligence with a mean of 104.3, but despite this, the average grade point average was 1.93 (slightly under a C average), which would indicate that the system of grading was relatively stringent. The correlation between the two variables was .36 which is a little bit below what one typically finds for predicting grades from intelligence test scores, but was nevertheless significant well beyond the .01 level. See Table 1 for a list of some of the variables correlated in this study, the number of cases, significance levels, etc. The correlation between twelfth-grade intelligence test scores (Ohio State Psychological Examination) and grade point average was .66, which is a very strong relationship and somewhat higher than one usually expects between these variables. The correlations usually run about .4 to .6. The twelfth-grade class mean on the Ohio State Psychological Examination was the 57.9 percentile which is relatively high and their grade point average was 2.20.

Next, median score received on the Syracuse Scales of Social Relations was correlated with G.P.A. The resultant r of .22 was
significant at the .05 level for ninth-graders and the $r = .24$ for twelfth-graders was significant at the .01 level. Although significant, the correlations are low. One might also suspect intelligence to play a contaminating role here since we have seen from the review of the literature that intelligence is related to peer ratings and also to scholastic achievement. Hence, at this point, a partial correlation coefficient\(^1\) was computed eliminating the influence of intelligence on the correlation between G.P.A. and median score received. The median score received for twelfth-graders was found to correlate to the extent of .35 with intelligence scores. A partial $r$ of .01 was obtained using the above correlations. It appears that the main factor in the relationship between peer popularity and achievement is accounted for by the contaminating factor of intelligence. Eta\(^2\) was also run at this point to see if the relationship between G.P.A. and peer popularity (ratings received) might be a non-linear relationship. The Eta coefficient for the regression of grade point average on median score received was .41 for the ninth grade while the regression of median score received on grade point average was .35. One can test whether the curvature in regression is large enough to see if it is not just a chance deviation from linearity\(^3\) and although both of these are significant at the .01 level they are not significantly larger than the Pearson product moment correlation coefficients.

\(^1\) The formula for partial $r$ can be found in Guilford, *Fundamental Statistics in Psychology and Education* (26).

\(^2\) The formula for Eta can be found in Guilford, *Fundamental Statistics in Psychology and Education* (26).

\(^3\) See Guilford, *Fundamental Statistics in Psychology and Education* (26).
The corresponding Etas for the twelfth grade were .44 and .49 both of which are significant at the .01 level. The Eta of .44 is significantly larger than the Pearson r of .24 (.05 level) and the regression of median score received on grade point average of .49 was significantly larger than the Pearson r of .24 (.01 level) thus indicating that in the twelfth grade the relationship does appear to be curvilinear and fairly substantial. When the contaminating factor of intelligence was factored out again, however, the relationships dropped to .22 and .23 from .44 and .49. See Table 7 for a complete list of Etas for all variables in this study.

When the ninth- and twelfth-grade females were put together and their G.P.A. correlated with their median score received, the correlation was .41 whereas the corresponding correlation for boys was only .05. It seems to be the case that scholastic achievement has a much stronger relationship with peer popularity for girls than it has for boys.

As was mentioned above, the correlation between The Ohio State Psychological Examination and median score received was .35, which was significant at the .01 level. For the ninth-graders, the corresponding correlation (California Test of Mental Maturity and median score received) was .27, which was also significant at the .01 level. Eta was also calculated for these two scatterplots and was found to be .34 and .36 for ninth-graders and .51 and .44 for twelfth-graders for regression of median score received on intelligence and intelligence on median score received respectively. Although all Etas are significant at the .01 level, only the .51 is significantly larger than the corresponding Pearson r to justify the assumption of curvilinearity.
Next, scores of the ninth-graders on the California Test of Mental Maturity were correlated with median score made with the \( r = -0.07 \). The corresponding correlation for twelfth-graders was \( -0.05 \). Both of these correlations were not significant. Median score made was found not to correlate highly with G.P.A., also \( (r = 0.14 \) for ninth-graders and \( r = -0.10 \) for twelfth-graders). More intelligent pupils tend to receive higher rankings by their peers, but little relationship is found between intelligence and how these same pupils accept their peers.

### Table 1

<table>
<thead>
<tr>
<th>( N^* )</th>
<th>Variables</th>
<th>Correlation</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>109</td>
<td>Intelligence - G.P.A. (9th)</td>
<td>0.36</td>
<td>0.01</td>
</tr>
<tr>
<td>118</td>
<td>Intelligence - G.P.A. (12th)</td>
<td>0.66</td>
<td>0.01</td>
</tr>
<tr>
<td>120</td>
<td>Mdn score received - G.P.A. (9th)</td>
<td>0.22</td>
<td>0.05</td>
</tr>
<tr>
<td>120</td>
<td>Mdn score received - G.P.A. (12th)</td>
<td>0.24</td>
<td>0.01</td>
</tr>
<tr>
<td>120</td>
<td>Mdn score received - Intelligence (9th)</td>
<td>0.27</td>
<td>0.01</td>
</tr>
<tr>
<td>118</td>
<td>Mdn score received - Intelligence (12th)</td>
<td>0.35</td>
<td>0.01</td>
</tr>
<tr>
<td>120</td>
<td>Mdn score made - Intelligence (9th)</td>
<td>-0.07</td>
<td>NS</td>
</tr>
<tr>
<td>122</td>
<td>Mdn score made - Intelligence (12th)</td>
<td>-0.05</td>
<td>NS</td>
</tr>
<tr>
<td>120</td>
<td>Mdn score made - G.P.A. (9th)</td>
<td>0.14</td>
<td>NS</td>
</tr>
<tr>
<td>118</td>
<td>Mdn score made - G.P.A. (12th)</td>
<td>-0.10</td>
<td>NS</td>
</tr>
<tr>
<td>124</td>
<td>Mdn score made - Mdn score received (9th)</td>
<td>0.12</td>
<td>NS</td>
</tr>
<tr>
<td>120</td>
<td>Mdn score made - Mdn score received (12th)</td>
<td>0.03</td>
<td>NS</td>
</tr>
</tbody>
</table>

* A few students' scores were not available, and hence the slight variations in the number of cases.
The median score made by each pupil was correlated with the median score received by each pupil and neither correlation was significant. The $r$ for ninth-graders was .12 and for twelfth-graders, .03. There seems to be little relationship between how one's peers perceive their succorance needs being met by the student involved and how he feels his needs are being met by his peers.

The next set of correlations have to do with discrepancy scores—both the discrepancy between mid-score of ratings received and made and also the discrepancy between rank on the intelligence test and on scholastic achievement (G.P.A.). First the discrepancy between scores received and made was correlated to G.P.A. and a correlation of .34 was found for twelfth-graders. This was significant at the .01 level. This seems to indicate that there is a definite positive although not too high relationship between higher achievement and a tendency to perceive one's peers as fulfilling one's needs to a lesser degree than they feel the person concerned is filling their needs. Once again here, however, the intelligence factor probably is a confounding one since more intelligent students tend to receive higher scores and grade point averages. Surprisingly, the correlation for ninth-graders for the same variables was .05 and not significant.

Discrepancy between ratings received and made and intelligence test scores were positive and significant at the .01 level for both grades although not high. The $r$ for ninth-graders was .26 and for twelfth-graders, .31. See Table 2.

At this stage of the investigation, another type of discrepancy score was found—the discrepancy between each student's rank on the
Table 2

<table>
<thead>
<tr>
<th>N</th>
<th>Variables</th>
<th>Correlation</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>119</td>
<td>Discrepancy (R-M) - G.P.A. (9th)</td>
<td>.05</td>
<td>NS</td>
</tr>
<tr>
<td>120</td>
<td>Discrepancy (R-M) - G.P.A. (12th)</td>
<td>.34</td>
<td>.01</td>
</tr>
<tr>
<td>120</td>
<td>Discrepancy (R-M) - Intelligence (9th)</td>
<td>.26</td>
<td>.01</td>
</tr>
<tr>
<td>118</td>
<td>Discrepancy (R-M) - Intelligence (12th)</td>
<td>.31</td>
<td>.01</td>
</tr>
<tr>
<td>115</td>
<td>Discrepancy (Intelligence-G.P.A.) - Mdn score made (9th)</td>
<td>.15</td>
<td>NS</td>
</tr>
<tr>
<td>116</td>
<td>Discrepancy (Intelligence-G.P.A.) - Mdn score made (12th)</td>
<td>.04</td>
<td>NS</td>
</tr>
<tr>
<td>116</td>
<td>Discrepancy (Intelligence-G.P.A.) - Mdn score received (9th)</td>
<td>.10</td>
<td>NS</td>
</tr>
<tr>
<td>117</td>
<td>Discrepancy (Intelligence-G.P.A.) - Mdn score received (12th)</td>
<td>.02</td>
<td>NS</td>
</tr>
<tr>
<td>115</td>
<td>Discrepancy (Intelligence-G.P.A.) - Discrepancy (R-M) 9th</td>
<td>.07</td>
<td>NS</td>
</tr>
<tr>
<td>118</td>
<td>Discrepancy (Intelligence-G.P.A.) - Discrepancy (R-M) 12th</td>
<td>.01</td>
<td>NS</td>
</tr>
</tbody>
</table>

intelligence test and his rank on G.P.A. The higher discrepancy scores in a positive direction indicate over-achievement whereas higher negative discrepancy scores indicate under-achievement. Discrepancy between intelligence and G.P.A. was first correlated with median score made and almost no relationship was found ($r = .15$ for ninth-graders and $r = .04$ for twelfth-graders). Discrepancy scores were then correlated with median score received and again almost no relationship was found ($r = .10$ for ninth-graders and $r = .02$ for twelfth-graders). There seems to be almost no relationship between under- and over-achievement and peer
popularity in terms of succorance needs. No relationship was found by correlating discrepancy between intelligence and grade point average and discrepancy between median score received and median score made ($r = .07$ for ninth-graders and $r = .01$ for twelfth-graders).

The next step in the investigation was to divide both the ninth- and twelfth-graders into three groups each based on intelligence, as was described in the methodology section. The investigator felt that it would be interesting to see whether there were differential patterns of relationships between under- and over-achievement and the variables of median score received and made in the different intelligence ranges. For the high intelligence group (IQ = 111-140) of ninth-graders, a correlation of $.24$ was observed between median score made and discrepancy between IQ and grade point average. This was not significant for this sample of thirty-seven students. Likewise, the correlation for the corresponding twelfth-grade group was not significant ($r = .19$). See Table 3 for all the correlations calculated for the high intelligence group.

As was the case in the upper intelligence group with median score made, there was no significant relationship between under- and over-achievement and median score received for the ninth-graders ($r = .16$). However, there was a strong relationship ($r = .44$--significant at the .01 level) between the same two variables at the twelfth-grade level. In this case, with intelligence being held fairly constant, it was found that the over-achievers did tend to be somewhat more popular with their peers.
Table 3
High Intelligence Group

<table>
<thead>
<tr>
<th>N</th>
<th>Variables</th>
<th>Correlation</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>Discrepancy (Intelligence - G.P.A.) - mdn</td>
<td>.24</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>score made (9th)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Discrepancy (Intelligence - G.P.A.) - mdn</td>
<td>.19</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>score made (12th)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Discrepancy (Intelligence - G.P.A.) - mdn</td>
<td>.16</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>score received (9th)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Discrepancy (Intelligence - G.P.A.) - mdn</td>
<td>.44</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td>score received (12th)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Corresponding correlations were calculated for the average intelligence range of students in both grades, the results of which are summarized in Table 4. As can be seen, almost no relationship was found between under- and over-achievement and median score made by the twelfth-graders. The correlation was only .04, but with the ninth-graders of average intelligence, this was not the case. The correlation of .57 is very substantial indeed. One is left wondering why this great disparity between ninth- and twelfth-graders. The samples are small, however, and a similar investigation needs to be done with a larger group of subjects.

In regard to the association between median score received and under- and over-achievement, one finds little. (r = .19 for ninth-graders and r = .10 for twelfth-graders, neither of which approaches significance.)

As similar variables were investigated for the below average group, the following results were found. Relationships were found to be unsubstantial between median score made and discrepancy between
Table 4

Average Intelligence Group

<table>
<thead>
<tr>
<th>N</th>
<th>Variables</th>
<th>Correlation</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>Discrepancy (Intelligence - G.P.A.) - mdn score made (9th)</td>
<td>.57</td>
<td>.01</td>
</tr>
<tr>
<td>41</td>
<td>Discrepancy (Intelligence - G.P.A.) - mdn score made (12th)</td>
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<td>NS</td>
</tr>
<tr>
<td>32</td>
<td>Discrepancy (Intelligence - G.P.A.) - mdn score received (9th)</td>
<td>.19</td>
<td>NS</td>
</tr>
<tr>
<td>41</td>
<td>Discrepancy (Intelligence - G.P.A.) - mdn score received (12th)</td>
<td>.10</td>
<td>NS</td>
</tr>
</tbody>
</table>

intelligence and scholastic achievement. The correlation coefficient was .15 for ninth-graders and .05 for twelfth-graders. Neither of these is near the .05 level of significance. See Table 5. Likewise the findings

Table 5

Below Average Intelligence

<table>
<thead>
<tr>
<th>N</th>
<th>Variables</th>
<th>Correlation</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
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<td>NS</td>
</tr>
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<td>Discrepancy (Intelligence - G.P.A.) - mdn score made (12th)</td>
<td>.05</td>
<td>NS</td>
</tr>
<tr>
<td>34</td>
<td>Discrepancy (Intelligence - G.P.A.) - mdn score received (9th)</td>
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<td>NS</td>
</tr>
<tr>
<td>40</td>
<td>Discrepancy (Intelligence - G.P.A.) - mdn score received (12th)</td>
<td>.13</td>
<td>NS</td>
</tr>
</tbody>
</table>
were not significant in the relationship between median score received and under- and over-achievement.

The last set of relationships that was investigated between the variables of under- and over-achievement and peer popularity was the relationship between median score made and under- and over-achievement (intelligence test score-G.P.A.) within three groups--high receivers (median ratings of thirty or more), medium receivers (median ratings of twenty through twenty-nine), and low receivers (ten through nineteen). That is, within each group of varying popularity with their peers, does one notice a relationship between perceived need fulfillment by one's peers and over- and under-achievement? Looking first at the highly popular group (a score of thirty puts one at the sixty-third percentile on the twelfth-grade standardization group norms) one finds a correlation of .34 for ninth-graders. This is approaching the .05 level of significance. The relationship was not this strong with twelfth-graders, however, and was found to be only .17 (see Table 6). In the average popularity group (thirty-first to sixty-second percentiles on the standardization group norms), the relationships were almost nonexistent between over- and under-achievement and median score made. The correlation was .18 for the ninth-graders and only .01 for the twelfth-graders. Likewise, little relationship was found with the same variables for the below average popularity group (first to thirtieth percentile on standardization group norms). In the ninth grade, the relationship was -.04 and in the twelfth grade, it was -.28, which is a little bit more substantial but still not significant. The breakdown into different
Table 6

<table>
<thead>
<tr>
<th>N</th>
<th>Variables</th>
<th>Correlation</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
<td></td>
<td>High Popularity Group</td>
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<tr>
<td>27</td>
<td>Discrepancy (Intelligence - G.P.A.) - mdn score made (9th)</td>
<td>.34</td>
<td>NS</td>
</tr>
<tr>
<td>41</td>
<td>Discrepancy (Intelligence - G.P.A.) - mdn score made (12th)</td>
<td>.17</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>Average Popularity Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>54</td>
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<td>NS</td>
</tr>
<tr>
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<td>Low Popularity Group</td>
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<tr>
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<td>Discrepancy (Intelligence - G.P.A.) - mdn score made (12th)</td>
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<td>NS</td>
</tr>
</tbody>
</table>

degrees of popularity was pretty unfruitful with no significant relationships found in any of the groups.

Table 7 follows and shows the value for the relationships between all of the variables for which Eta was computed. Corresponding Pearson r's are shown and the significance of both sets of correlations and also the significance of the difference between Pearson r and Eta ($\gamma$).

Perhaps the most striking finding from computing Etas for the major variables of this study was that although Eta was without exception
<table>
<thead>
<tr>
<th>Grade</th>
<th>Variables</th>
<th>Eta</th>
<th>Level of Significance</th>
<th>Pearson r</th>
<th>Level of Significance</th>
<th>Significance of Difference between $\eta$ and Pearson r</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>G.P.A. on Mdn score received</td>
<td>.41</td>
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<td>.22</td>
<td>.05</td>
<td>NS</td>
</tr>
<tr>
<td>9</td>
<td>Mdn score received on G.P.A.</td>
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<td>.01</td>
<td>.22</td>
<td>.05</td>
<td>NS</td>
</tr>
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<td>9</td>
<td>Mdn score received on Intelligence</td>
<td>.34</td>
<td>.01</td>
<td>.27</td>
<td>.01</td>
<td>NS</td>
</tr>
<tr>
<td>9</td>
<td>Intelligence on Mdn score received</td>
<td>.36</td>
<td>.01</td>
<td>.27</td>
<td>.01</td>
<td>NS</td>
</tr>
<tr>
<td>9</td>
<td>Mdn score made on Discrepancy (Intell. - G.P.A.)</td>
<td>.37</td>
<td>.01</td>
<td>.15</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>9</td>
<td>Discrepancy on Mdn score made</td>
<td>.34</td>
<td>.01</td>
<td>.15</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>9</td>
<td>Mdn score received on Discrepancy (Intell. - G.P.A.)</td>
<td>.24</td>
<td>.05</td>
<td>.10</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>9</td>
<td>Discrepancy on Mdn score received</td>
<td>.36</td>
<td>.01</td>
<td>.10</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>9</td>
<td>Mdn score made on Intelligence</td>
<td>.41</td>
<td>.01</td>
<td>-.07</td>
<td>NS</td>
<td>.05</td>
</tr>
<tr>
<td>9</td>
<td>Intelligence on Mdn score made</td>
<td>.29</td>
<td>.01</td>
<td>-.07</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>9</td>
<td>Mdn score made on G.P.A.</td>
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<td>.01</td>
<td>.14</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>9</td>
<td>G.P.A. on Mdn score made</td>
<td>.29</td>
<td>.01</td>
<td>.14</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>12</td>
<td>G.P.A. on Mdn score received</td>
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<td>.01</td>
<td>.24</td>
<td>.01</td>
<td>.05</td>
</tr>
<tr>
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<td>.01</td>
<td>.24</td>
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<td>.01</td>
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<tr>
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<td>.01</td>
<td>.35</td>
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<td>NS</td>
</tr>
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<td>NS</td>
<td>NS</td>
</tr>
<tr>
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<td>-.05</td>
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<td>NS</td>
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<td>.05</td>
<td>-.05</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
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<td>.05</td>
<td>-.05</td>
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<td>NS</td>
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larger than Pearson $r$, in only four instances out of twenty-four was it significantly larger to justify an assumption of curvilinearity. The regression of G.P.A. and intelligence on median score received and vice versa has already been discussed. Of the remaining Eta's, all were in the .20's or .30's except median score made on intelligence for ninth-graders which was significantly higher (.05 level) than the Pearson $r$ and was fairly substantial at .41. This contrasts with almost complete lack of relationship shown by Pearson $r$ (-.07). The most important finding was the low relationships between median score received and made and discrepancy between grade point average and intelligence (over- and under-achievement). The results were somewhat more substantial than was found with Pearson $r$'s, however.

Next, the intellectual status of each student's most highly rated classmate was examined and compared with the intellectual status of the student making the choice. It was found that students in the upper third of the class intellectually (intelligence) speaking tended to pick significantly more often within their own group than in the middle or lower intelligence group. $\chi^2$ was significant at the .01 level for both the ninth and twelfth grades. This was not true at the middle and lower intelligence ranges. Also in terms of mutual friendships and cliques, the same phenomenon was observed. Cliques (composed of two or more friends who rated each other mutually high) tended to be formed more often within the upper intelligence groups than between students of different intelligence groups. This was not borne out in the middle and lower intelligence groups. Perhaps the most striking finding here was that almost no cliques or pairs of mutual friends were found between
members of the lower intelligence group. Further, children of lower intelligence tended to belong to only about one-half as many cliques or mutual friendships within the class as did those of the highest intelligence group. The middle intelligence group was in between. The high ratings given by many of the children of lower intelligence were not reciprocated by those to whom the ratings were given.

DISCUSSION AND SUMMARY OF FINDINGS

This study was characterized by lack of substantial relationships between most of the variables studied. Contrary to some of the previous studies made (notably the ones by Hall and Baeddert (27) and Edminston and Rhoades (19)), most of the relationship that existed between peer popularity and scholastic achievement was found to vanish when intelligence was partialled out. This was not done in the case of the previously mentioned studies.

An interesting finding was that more intelligent students tend to receive higher popularity ratings from their peers than they give.

The most important finding of the study was that no substantial relationships were found (when the groups were not divided according to intelligence) between under- or over-achievement and peer popularity (ratings received) or peer acceptance (ratings made).

After the ninth- and twelfth-grade groups were divided into high, average, and low intelligence groups, only two significant relationships were found. The correlation between under- or over-achievement and peer popularity in the twelfth-grade high intelligence group was significant at the .01 level. However, this was not found to be the case at either
the ninth-grade level or for the groups before segregation into intelligence levels. Similarly, no such relationship was observed in the average and below average intelligence groups. Since there were only thirty-six cases involved, one should be very skeptical of this finding. A repeat study should be run with a larger sample. The other significant finding was that peer acceptance and over- and under-achievement were related at the .01 level in the ninth-graders of average intelligence. The same reasoning should be applied here as was stated above.

Contrasted to Williams' study (68) quoted in the review of literature, no strong relationship was found between acceptance of peers extended by the student and scholastic achievement, nor was median score made related strongly to intelligence or over- and under-achievement. Williams' measure of scholastic achievement was performance on standardized achievement tests, however, and his students were all gifted.

Eetas were also run for all of the major variables, and although most of the correlations were somewhat higher than the corresponding Pearson r's and significant at the .01 level, they were mostly on the order of the .20's or .30's.

Students in the higher intelligence range were found to choose significantly more best friends within their own intelligence level. The same pattern was also found to hold for cliques and mutual friendship pairs. This was not the case among average and low intelligence groups, however. Children with lower intelligence formed fewer cliques and mutual friendships.
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The importance of academic under-achievement especially among the gifted caused the writer to choose the problem of investigating the relationship of peer popularity to achievement and especially to under- and over-achievement. Various studies were reviewed from the literature on the relationships of various factors with academic under- and over-achievement. Few studies were found on the relationship between peer popularity and achievement and disagreement was found among the studies. Uncontrolled factors were discussed which could account for some of the variance in the findings. One hundred twenty-two twelfth-graders and one hundred twenty-four ninth-graders were used in the study. The main correlations that were run were between the following variables: intelligence, grades, peer popularity and peer acceptance as measured by the Syracuse Scales of Social Relations and over- and under-achievement as measured by discrepancy between rank on grades and intelligence. The role of intelligence in the selection of friends and clique formation was also investigated.

Both the twelfth- and ninth-grade groups of students showed relationships typical of findings quoted in the literature in terms of correlation between intelligence and grade point average (.66 and .36 respectively). Likewise correlations of .24 and .22 for twelfth-and ninth-graders respectively between median scores received and grade.
point average are not atypical. However, it was found that when intelli-
geance was partialed out of this relationship (since intelligence is
correlated quite highly with both grade point average and peer popularity)
there was nothing left. This had not been done before in any studies
examined by the writer. The correlations between median score received
and intelligence were .35 and .27 for the twelfth and ninth grades. No
substantial relationships were found between median score made (peer
acceptance) and either intelligence or grade point average contrary to
Williams' findings as reported in the literature review. Contrasted to
this study, however, Williams' was with gifted elementary school children
and he used a different measure of peer acceptance and academic
achievement.

No substantial relationship was found between under- and over-
achievement and either peer popularity (median score received) or peer
acceptance (median score made).

After the ninth- and twelfth-grade groups were divided into
high, average, and low intelligence groups, only two significant
associations were found. The correlation between under- or over-
achievement and peer popularity in the twelfth-grade high intelligence
group was significant at the .01 level. However, this was not true at
either the ninth grade level or for the groups before segregation into
intelligence levels. With only thirty-six cases involved, this finding
should be considered with some skepticism. Perhaps another study needs
to be made with a larger number of cases. The other significant finding
after division of the groups was a correlation of .57 between peer
acceptance and over- and under-achievement at the average intelligence level for ninth-graders. The same conclusions could probably be drawn here as were drawn above.

An interesting finding was that more intelligent students tend to receive higher median ratings than they give.

Etas were also run for all of the major variables, and although most of the correlations were somewhat higher and significant at the .01 level, they were mostly on the order of the .20's or .30's. The relationship between grade point average and median score received was somewhat higher, but when the effect of intelligence was partialed out, it turned out to be not nearly so significant, once again indicating that much of the relationship is a function of the fact that more intelligent children tend to be more popular.

Students in the higher intelligence range were found to choose significantly more best friends of the class within their own intelligence range. Also in the formation of cliques and mutual friends the same pattern was found to hold. This was not the case, however, in the average and lower intelligence ranges. Children of lower intelligence tended to form far fewer cliques and mutual friendships and when they did almost never with those of their own intelligence level. In other words, they would frequently rate someone from the upper or middle intelligence level as their first pick among their classmates but this friendship rating would frequently not be reciprocated.

In summary, the original hypothesis was not at all strongly supported. The correlations between median score received and over- and
under-achievement ran only in the .20's or .30's for Eta and less for Pearson r. Likewise peer acceptance (median score made) and over- and under-achievement correlated only in the .30's for Eta. Once again, the Pearson r's were smaller. Close inspection of the individual cases of extremely unpopular students revealed extremely varied reactions in terms of achievement. Some students thus rated were grossly under-achieving and others were extreme over-achievers as if to show their classmates that they were worthy of attention. Likewise, some extremely popular students over-achieve but many are not living up to their potential—as if perhaps too much time is spent on activities and not enough studying. Indications of this study point to the fact that scholastic endeavor is more closely related to peer popularity for girls than for boys. There seem to be many factors related to academic achievement such as mentioned in the review of the literature only one of which is peer popularity. Peer popularity or lack of it might also be tied up with some of the personality factors that were found to be in turn related to under-achievement (e.g., hostility, moodiness, and egocentricity). A course of action to be followed with under-achievers would be a study of their personality and peer popularity with counseling recommended for those with problems in these areas. With other students, however, the source of difficulties might be poor study habits, poor homes, lack of vocational goals, etc.

One must be cautious in generalizing from the results of this study to different types of students such as rural or culturally deprived ones. Likewise, if different measures of peer popularity or intelligence were used, the results might be somewhat different.
Nevertheless, one might justifiably assume that similar results might be found in many sections of the country with this type of student and similar measuring instruments as were used here.

Several further studies, related to the present research, might be accomplished as a means of clarifying further aspects of the peer relations-achievement association. Students of low socioeconomic status need to be studied to see if the same relationship is found as in the middle class group reported in this study. The writer would expect a negligible relationship at best, due to less stress on academic matters among this group. A large sample of boys should be studied and contrasted with girls to see whether, as in this study, boys show a much lower correlation between peer popularity and achievement. A larger group of students should be used and classified on the basis of intelligence, as was done in this study, to see what relationship exists (holding intelligence relatively constant) between peer popularity and achievement. It would be interesting to see to what extent their school work would improve if a group of highly popular under-achievers had their social activities limited. Lastly, a group of unpopular under-achievers should be counseled on eliminating undesirable personality traits and acquiring social poise as a means of learning to what extent achievement would be affected.
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