

INDICES OF SELF AND ATTITUDE TOWARD
ENVIRONMENT IN THE PREDICTION
OF ACHIEVEMENT

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by

Mary-Clare Milligan Boroughs

A THESIS

Submitted to the College of Arts and Sciences of
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The purpose of this study was to examine aspects of self-concept and attitude toward environment in relation to achievement. The research was planned as the initial stage in test construction for the measurement of achievement-related personality characteristics.

The review of relevant literature led to three hypotheses. These predicted that achieving students would report (1) self-concepts differing in specified respects from those reported by underachievers, (2) greater self-esteem than underachievers, and (3) more positive attitudes toward environment than underachievers.

The sample for this study included all identified (270) boys and girls with IQs of 125 and above (Stanford-Binet) who attended the seventh, eighth, and ninth grades of the four public junior high schools of Lansing, Michigan. Two tests were developed: an adjective list from which a self-rating on both self-concept and self-esteem were procured and the semantic differential technique applied primarily as a measure of attitude toward environment. The responses of 200 students designated as achievers and underachievers on the basis of grade point average were subjected to item analysis. In addition the variables of sex, grade, and IQ were investigated for their relation to results.

It was found that responses to 17 of the 110 items discriminated between achievers and underachievers. All

three hypotheses received some support. It was particularly noted that the majority of discriminating items of self-concept, self-esteem, and attitude toward environment were themselves achievement oriented. Other analyses indicated that results were not contaminated by sex, grade, or IQ.

DEDICATION

to

Art, my husband,

and

Becky, our first-born

ACKNOWLEDGMENT

It was the enthusiastic interest and support of Dr. Elizabeth Monroe Drews that made this project a reality. For this the author is most grateful.

Further thanks go to Dr. Louis L. McQuitty for his many suggestions on the research plan, and to both Dr. McQuitty and Dr. John R. Hurley for their assistance with the manuscript.

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INTRODUCTION

The topic of school achievement has long concerned educators and psychologists. Recently a focus has been the question of identification and stimulation of superior potential in a school system now geared to the average student. The apparent waste of some gifted ability has led to an increase in research on the gifted.

This present study evolved as part of ongoing research with superior students in the Lansing schools by Dr. Elizabeth Monroe Drews. The particular area for this investigation was delineated in response to the plea by Rogers that the fundamental object of psychology "be the person and his world as viewed by the person himself" (44, p. 362). This study examines aspects of self-concept and attitude toward environment in relation to achievement. The study was restricted to gifted students. The research was planned as the initial stage in the development of an instrument or instruments which could eventually prove helpful in the measurement of personality characteristics related to achievement.

REVIEW OF THE LITERATURE

In the selection of the literature to review in relation to the problem of concern two limits were applied. Only original sources were used, thus eliminating some interesting, but incomplete or vague references to unpublished research. Secondly, and in keeping with the stated purpose of this study, emphasis was placed upon literature using self-report of students on paper and pencil or projective tests or interviews, thus precluding such material as ratings by others, number of school offices held, and sociometric studies.

The review of the literature includes studies using these four types of subject sample: children and youth, gifted children and youth, college students, and gifted college students. Further restriction was not made for several reasons. It has not been established that gifted students differ from other students in perceptions of self and the world related to achievement. In addition, gifted youth score very much like college students on certain types of tests. There is also evidence that patterns of achievement remain rather constant from adolescence on into college (13,16,20,54).

The original terminology used by the authors for both samples and personality variables was applied as their material was cited. The terms for achievement selected for this study were achiever and underachiever.

Self-Concept

The first area of literature reviewed is that of the self-concept in relation to level of achievement. The self-concept is here accepted to have the meaning given it by Snygg and Combs: "Those parts of the phenomenological field which the individual has differentiated as definite and fairly stable characteristics of himself" (46, p. 111). The literature is reviewed in four separate areas: social adjustment, personal or emotional adjustment, intensity and efficiency of activity, and scholarliness.

Social Adjustment

Social adjustment in this context includes those attitudes toward self which relate to general sociability, social concern, socialization or conformity to cultural standards, and independence.

The concepts of introversion and extroversion have often been used in studies of social adjustment. In a summary of literature prior to 1933, Stagner (47) concluded that the introverted have generally been shown to do better in college than the extroverted. Flemming (18) reported a low but significant correlation between college grades and introversion measured by the Colgate Schedule C-2. Gough (21) in 1953 criticized these earlier studies as inadequate in personality measures. In two more recent studies using the Minnesota Multiphasic Personality Inventory (MMPI),

both Altus (1) and Owens and Johnson (41) found that high achievers exceed low achievers in the number of introverted type responses. It should be noted that Altus' measure of achievement was limited to test scores in one course, and Owens and Johnson's subject sample may have been biased by scientific vocational choice (11, 43, 51, 53). Eckert's results (16) seem to support those of the above studies in that superior college students in her study rated themselves less able at meeting new people in social situations than did inferior students.

Although achievers tend to be introverted, other studies show that they have greater maturity of social concern and responsibility than underachievers. Gough (23) reported that gifted achievers are socially responsible and tolerant. Morgan (38) found awareness and concern for others with a sense of responsibility in the MMPI responses of students of superior ability. He concluded that non-achievers may be more callous, socially insensitive, irresponsible, and self-centered than achievers. Tentative results of research by Hobbs (29) on gifted adolescents showed high achievers are more responsible, and committed in their outside activities.

Also in the area of social adjustment are studies dealing with conformity. The high achieving high school students studied by Gough (21) were more accepting of conventions than underachievers. He also found (23) under-achievers among gifted students to have response patterns

similar to delinquents. He concluded that academic achievement is, in itself, a form of social behavior. Conformity and control were typical of high achievers in Grade III studied by Haggard (25). These children were more antagonistic toward adults by Grade VII, but their intellectualization, lowered creativity, and their roles as respected leaders still point to conformity. Harris (27) reported that non-conformity is associated with low grades in college.

While achievers seem to evidence greater social concern and conformity in their self-concept, research also indicates independence or self-sufficiency to be associated with achievement. Gough (21), Gowan (24), and Stagner (47) all mentioned that self-sufficiency differentiates between high and low achievers, although Gough did not find this in his high school samples. Both Gough and Stagner found a positive correlation between degree of self-sufficiency and achievement level. Gowan, however, believes that self-sufficiency is basic to low achievement. Further evidence for the conclusion of Gough and Stagner is probably found in studies by Altus (1), Kimball (31), and Lewis (34). Dependency was evident among low achievers studied by Altus and Kimball, and Lewis noted that self-reliance characterized that responses of accelerated students.

Summary. The literature on social adjustment seems to show social concern, conformity, and independence or self-sufficiency to be more typical of achieving students than

underachieving students. On the other hand, general sociability or extroversion is more often found in underachievers than achievers.

Personal or Emotional Adjustment

Literature on this topic is divided into general personal adjustment, emotions, and confidence.

Some studies indicate that good personal adjustment is related to high achievement. Stagner (47) interpreted early experiments by stating that the unstable do less well. Stone and Ganung (50) found that girls at Utah State with one or more high MMPI scales had lower grade point averages. This was corroborated by Owens and Johnson (41) as well as by Altus (1). However, some investigations (13, 29) did not reveal differences.

In the area of emotions, the results of a variety of studies appear to be in agreement. Using a Thorndike Scale, Flemming (18) found higher grades went to college students with emotional steadiness and consistency. Gough (21) mentioned the self-control of achieving high school students. Immaturity, fearlessness, self-assertiveness, and a manic tendency were noted by Altus (1) in the responses of non-achievers in college. The minus-achieving school children studied by Kurtz and Swenson (32) showed more emotional conflict than plus-achieving school children. Kimball (31) found that underachieving gifted high school boys were controlling of early aggression with resultant passivity.

Walsh (56) observed restriction and inadequacy of emotional expression in the self-roles of doll play by 40 young boys who were low achievers. This material seems to point to the existence of problems in emotional control in underachievers, as contrasted with emotional steadiness and adequate control in achievers. The sense of emotional well-being found in Terman's successful men (54) is further support for this view.

In the phase of emotional adjustment termed confidence, five studies (3, 21, 32, 38, 48), representing all four types of subject sample, report that achieving students indicate feelings of personal worth, adequacy, and confidence. In addition Haggard's (25) high achieving gifted Grade III children were characterized by a high sense of security and confidence, and Kimball (31) noted feelings of inferiority in low achieving gifted clinic cases. Thus confidence has frequently been found in the self-concept of achieving students, while underachievers appear to be subject to feelings of inadequacy. Kimball vividly expressed the meaning of this difference as she observed it among clinic cases: "When feelings of inferiority are strong, we see a pattern of almost deliberate failure" (31, p. 408).

Summary. All three divisions of this category give the weight of evidence to more adequate personal and emotional adjustment among achieving students than among underachievers. A general sense of confidence and worth is perhaps most

characteristic of achieving students, and this seems likely to be coupled with the feeling that emotions are adequately controlled.

Intensity and Efficiency of Activity

Such terms as energy, persistence, and efficiency appear frequently in the literature on achievement. A related topic also mentioned in this context concerns vocational plans.

On the high school level, responses of high achieving students showed greater capacity for sustained diligent application, personal efficiency, vitality, and integration on the Gough Scale (21) than did underachievers. Barrett (3) mentioned both ability to persist in the face of difficulty and amount of interest in leisure time activities as characteristic of the responses of the achieving gifted high school student. Persistence was also found among Grade VII achievers by Haggard (25). While his results were tentative, the gifted adolescents of Hobbs (29) appeared to be more committed to outside activity and notable for concentration, effort, and intensity of activity.

Similar results have been published in studies of college students. Stevens (48) concluded that the academically successful conceive of achievement related characteristics such as energy, productivity, and efficiency as salient. Brown, Abeles, and Iscoe (12) used the phrase "activity delay" to describe poor students. The superior

college students studied by Eckert (16) were more persistent in problemsolving than were inferior students, as shown by self-ratings. Efficiency and energy also characterized Morgan's achieving students (38) of high ability.

Five of the articles reviewed deal with some phase of vocational interest. Although Harris (27) found no significant correlation between presence of vocational decision and grades, a more recent study by McQuary (36) found that under-achievers were more uncertain about vocational choice than were achievers. However, McQuary's sample represented those students seeking counselling center services in a college, and could have been biased by those students who specifically sought vocational help. The minus-achievers of Kurtz and Swenson (32) had limited aims as contrasted with the plus-achievers who had high aims, and whose goals were related to school work. Both Armstrong (2) on the high school level and Dowd (13) among college students concluded that underachievers are aiming toward goals at variance with their personal interests. These articles together seem to point to greater clarity and height of purpose in achieving students than in underachieving students.

Summary. In this category research results indicate a higher level of interest, energy, and persistence in achieving students than in underachieving students. This appears to be true even in activities outside of school. Achievers see themselves as efficient, capable, vital persons. Maturity of goals seems to fit in with these characteristics.

Scholarliness

Much of the material on intensity and efficiency of activity applies also to the individual's view of his scholastic potential, since most of the subjects were primarily occupied as students. Further evidence reveals that the achiever most specifically sees himself as scholastically capable.

A sense of academic effectiveness and accomplishment characterized Gough's achieving high school students (21). A trend toward stronger intellectual concern during the school years was found among Terman's successful men (54) as contrasted with the unsuccessful. Self-insight into their intellectual ability was noted among the academically successful students of Stevens (48). Furthermore, underachievers seem to show a greater interest in less academic areas than achievers. Armstrong (2) studied underachievers who preferred outdoor activity. Research by Drews (14) and Kurtz and Swenson (32) indicates that low achievers are directed toward "how-to" reading and handwork, respectively.

Summary. Thus the self-concept of achieving students includes the view of self as a successful scholar. This may be the most basic aspect of self-concept as it relates to achievement.

Self-Esteem

Closely allied to self-concept is the evaluation of self-as-conceived. Rogers (44), Litwinski (35), and Hilgard (28) have all emphasized the fundamental identification of

this evaluation or self-esteem with the structure of the self. Interesting evidence for this theory is the fact that such terms as self-confidence and feelings of worth were used in the section on personal adjustment. The concept of self as successful in the academic area also entered into the preceding discussion under the title of scholarliness. Thus it is difficult in practice as well as in theory to separate self-esteem from self-concept.

Further reports on research in self-esteem are available in the literature. Some of these deal more directly than others with the relationship between self-esteem and achievement. Drews (14) found high achieving gifted high school students were more positive than low achievers in their attitude toward themselves. In a task of recall of solvable and insolvable sentences, Mellett (37) shows that individuals who accept themselves repress less than those who do not. If this research is applicable to school achievement, then it suggests that the self-accepting student has more material available in the school situation and may thus attain higher grades. Hanlon, Hofstaetter, and O'Connor (26), using a Q sort test in paper and pencil form, compared the congruence between real and ideal self with results on the California Test of Personality. The correlation between self-ideal congruence and adjustment was marked, rectilinear, and not a function of intelligence. The research shows its possible relationship to achievement

in the items distinguishing those with low self-ideal congruence. These included "lack of persistence in work habits . . . feelings of oppression and inadequacy . . . dislike (for) school . . . and . . . negativistic attitudes (which) made for difficulties in their relationship with teachers, fellow pupils, and the opposite sex" (26, p. 217). While these authors did not study achievement per se, the qualities listed are qualities which have been shown to belong most typically to underachievers. Bills (9) work indicates that self-ideal congruence, the measure used in the above study, is significantly related to self-esteem.

Elements of inner conflict which seem to be related to low achievement represent, in themselves, the problem of conflict between self-concept and failure to accept self-concept or aspects of it. Berger and Sutker stated that "the well-adjusted groups in all ranges, particularly in the highest intellectual range, do better academically than those in conflict" (4, pp. 75-76). Terman's successful men (54) differed from the unsuccessful in their higher academic achievement in high school and college, their integration toward goals, self-confidence, and lack of inferiority feelings. Here again the higher self-esteem with lack of conflict accompanied higher achievement.

Summary. The literature, therefore, presents evidence that high self-esteem is more characteristic of the achiever than the underachiever. Achieving students appear to have

greater unity within, greater confidence in their abilities, and greater freedom from conflict. This is more specifically true for those aspects of self-concept related to achievement itself.

Perception of Reality Beyond Oneself

The relationship between self-concept and behavior is not clear without the further ingredient of perception of reality beyond oneself. This perception "is deeply affected by the phenomenal self" (46, p. 128) and together with the self-concept forms the more inclusive basis for behavior "as a reaction to this (total) reality-as-perceived" (44, p. 368). The perceptions of three aspects of reality are considered here: attitudes toward school, others, and family.

Attitudes toward school include attitudes toward school curriculum, attendance, and teachers. The under-achievers in the gifted high school group of Barrett (3) were negative in their attitudes toward school. Drews' high achieving gifted (14) were more positive toward school than low achievers. Less happiness with school was noted of minus-achievers by Kurtz and Swenson (32), and Dowd (13) observed that non-achievers in college tend to dislike both courses and teachers. In all of these reports low achievement was coupled with a dislike for some aspect of the school environment.

Whereas the literature cited in the section on social adjustment and self-concept shows achievers to be generally more introverted and less sociable, there is limited evidence that these same achievers would show more positive attitudes toward others than might be expected. Both Stock (49) and Omwake (39) observed that there is a positive relationship between attitudes toward self and attitudes toward others. If the achiever has a more positive attitude toward himself, as the literature on self-esteem indicates, then this would be reflected in reports of attitude toward others. Gough's report of tolerance in gifted achievers (23) is evidence of this.

Attitudes toward family are mentioned as such in only a few articles. However, other research in the area of family relationships appears to have relevance. Owens and Johnson (41) found family relationships a problem for under-achievers. Kurtz and Swenson (32) compared the home situations of plus-and minus-achievers and noted that their sample of plus-achieving children came from more affectionate homes where children were more eager to please their parents. Kimball (30, 31) reported boys of high ability and low achievement had poor father-son relationships. Drews' high achievers (14) were more positive in their attitudes toward home. Two additional articles (3, 29) indicate that more positive family relationships exist as the background for high achievement than for low achievement. Although at

first glance in some disagreement, further study shows that the findings of Drews and Teahan (15) corroborate this view. The one disagreement seems to come from the research by Haggard (25) in which, by Grade VII, the high achieving gifted children were more antagonistic toward adults than low achieving gifted children. In several areas Haggard's results were at variance with other research findings, and it is possible that personal bias and/or a clearly biased sample (an exclusive school population at the laboratory school of the University of Chicago) are responsible for this difference. Certainly the major portion of the literature supports the prediction that a general positive attitude toward family can be expected of achievers.

Summary. The attempt to predict the relationship between achievement and perception of reality beyond oneself led to an examination of research literature on attitudes toward school, others, and family. The strongest evidence is that more positive attitudes toward school are found among achieving students than among underachievers. However, the literature may also point to more positive attitudes toward family and others by these same students.

HYPOTHESES

The review of the literature led to a series of hypotheses regarding expected differences between achieving and underachieving students.

- I. Achieving students report self-concepts which differ in certain respects from those reported by underachieving students. It is predicted that achievers will exceed underachievers in introversion, social concern, conformity and self-sufficiency, confidence and control, and efficiency, energy and interest. The view of self as an able scholar is predicted to be a basic component of self-concept related to high achievement.
- II. Achieving students report greater esteem for themselves as they see themselves than do underachieving students.
- III. Achieving students report more positive attitudes toward their environment, particularly the school environment, but also toward family and others, than do underachieving students.

METHOD

Sample

The sample for this study included all identified ✓ gifted boys and girls who attended the 7th, 8th, and 9th grades of the four public junior high schools in Lansing, Michigan during the school year of 1957-1958.

For this research "gifted" was specified to include individuals with IQs 125 (Stanford-Binet) and above. In an effort to identify all Lansing students of superior ability, individual tests had been administered in the public schools upon recommendation from teacher or principal. Choice for this referral was based on a reading level judged to be two or more years above the average for grade placement, ability shown on achievement tests, high grades and/or teacher opinion. Students in this sample had been tested within the past three years. Table 1 shows the ranges and medians of IQs of girls and boys identified in each grade. In the 7th grade girls' IQs ranged from 126-160 with a median of 137.5 and boys' IQs ranged from 125-167 with a median of 135.0. In the 8th grade girls' IQs ranged from 125-167 with a median of 135.3 and boys' IQs from 127-161 with a median of 136.8. In the 9th grade girls' IQs ranged from 126-164 with a median of 137.6 and boys' IQs from 125-167 with a median of 136.6. The range for all IQs was 125-167 with a median

TABLE 1
SAMPLE: IQ

Group	IQ	
	Range	Median
7th Grade Girls	126 - 160	137.5
7th Grade Boys	125 - 167	135.0
8th Grade Girls	125 - 167	135.3
8th Grade Boys	127 - 161	136.8
9th Grade Girls	126 - 164	137.6
9th Grade Boys	125 - 166	136.6
Total	125 - 167	136.7

of 136.7. Plotted with an interval of 3, the distribution of all IQs was flat from 125-139, but resembled the upper extreme of a normal distribution beyond 139. The sample apparently does not include all of the junior high pupils with IQs above 125. It may be estimated that three percent of those with IQs of 125 and above are missing. This estimate was made using the standard deviation for age 13. At that age an IQ of 125 is 1.4 standard deviations above the mean. According to this eight percent of the school population should score 125 and above. This sample of 270 includes only five percent of the total enrollment in junior high. Further evidence for this missing group is in the rectangular distribution of IQs from 125 to 139, as well as the smaller groups identified and tested in grades 7 and 9.

This criterion for giftedness resulted in a subject sample representing the four schools as shown in Table 2. School 1, with a total enrollment of 1,332 had 51 gifted girls and boys: 9-7th grade girls, 10-7th grade boys, 10-8th grade girls, 9-8th grade boys, 6-9th grade girls, and 7-9th grade boys. School 2, with a total enrollment of 1,386 had 62 gifted girls and boys: 18-8th grade girls, 17-8th grade boys, 14-9th grade girls, and 13-9th grade boys. School 3, with a total enrollment of 1,268, had 82 gifted girls and boys: 11-7th grade girls, 8-7th grade boys, 24-8th grade girls, 9-8th grade boys, 17-9th grade girls, and 13-9th grade boys. School 4, with a total enrollment of 1,355 had

TABLE 2
SAMPLE: SCHOOL REPRESENTATION

Group	School				Total
	1	2	3	4	
Total Enrollment (Oct. 1, 1957)	1,332	1,386	1,268	1,355	5,341
7th Grade Girls	9	--	11	2	22
7th Grade Boys	10	--	8	11	29
8th Grade Girls	10	18	24	27	79
8th Grade Boys	9	17	9	15	50
9th Grade Girls	6	14	17	8	45
9th Grade Boys	7	13	13	12	45
Total	51	62	82	75	270

75 gifted girls and boys: 2-7th grade girls, 11-7th grade boys, 27-8th grade girls, 15-8th grade boys, 8-9th grade girls, and 12-9th grade boys. The total of 270 students includes 146 girls (7th grade--29, 8th grade--50, and 9th grade--45) and 124 boys (7th grade--29, 8th grade--50, and 9th grade--45).

Grade point averages were also compiled for this group. With the exception of a few students whose records were incomplete, these were based on grades from the preceding 1-1/2 years for those in grades 7 and 8 and the preceding 2-1/2 years for those in grade 9. Grades for the first part of the school year 1957-1958 were included. Grade point average was based on all school courses with 4.00 for A, 3.00 for B, 2.00 for C, 1.00 for D, and 0.00 for F. Table 3 shows the total range of grade point averages to be 2.13-4.00, with a median of 3.61. Separation into boys and girls in each grade shows that 7th grade girls had a range of 2.77-4.00 with a median of 3.65, 7th grade boys had a range of 2.55-4.00 with a median of 3.37, 8th grade girls had a range of 2.22-4.00 with a median of 3.62, 8th grade boys had a range of 2.22-3.93 with a range of 3.36, 9th grade girls had a range of 2.53-4.00 with a median of 3.82, and 9th grade boys had a range of 2.13-3.96 with a median of 3.36.

In addition, information on socio-economic status was available. Students had been rated on a scale of 1-7 using the Warner Scale (see Appendix) of father's occupation.

TABLE 3
SAMPLE: GRADE POINT AVERAGE

Group	Grade Point Average	
	Range	Median
7th Grade Girls	2.77 - 4.00	3.65
7th Grade Boys	2.55 - 4.00	3.37
8th Grade Girls	2.22 - 4.00	3.62
8th Grade Boys	2.22 - 3.93	3.36
9th Grade Girls	2.53 - 4.00	3.82
9th Grade Boys	2.13 - 3.96	3.36
Total	2.13 - 4.00	3.61

On this scale 1 represents high level managerial and professional occupations, and 7 the transient, unemployed, and jailed. As Table 4 shows, the group status ranged from 1-6 with a median of 2.93. Within the total group grade 7 girls had a range of 2-5 with a median of 3.10, grade 7 boys had a range of 1-6 with a median of 2.93, grade 8 girls had a range of 1-6 with a range of 2.64, grade 8 boys had a range of 1-6 with a median of 3.00, grade 9 girls had a range of 1-6 with a median of 3.11, and grade 9 boys had a range of 1-6 with a median of 2.83.

The adequacy of this sample can be noted in several respects. First, the choice of 125 as a minimum IQ for giftedness is defensible. Although Terman (52) used 140 as the minimum for his genius classification, other more recent studies specify 125 or 130 for the gifted (15, 23, 24, 31). Roe's research with scientists (43) may indicate a minimal IQ as low as 125, although tests comparable to the Stanford-Binet could not be administered. Furthermore, the concern which leads to this present-day research with the gifted centers around those students for whom the average courses are not sufficiently stimulating, and the experience of teachers seems to indicate that children with IQs of 125 and above generally belong in this category. In addition to the IQ limit itself, a further advantage here was the use of individual testing rather than the less reliable group testing as found in some research (1, 13, 32, 36, 38).

TABLE 4
SAMPLE: SOCIAL STATUS

Group	Social Status	
	Range	Median
7th Grade Girls	2 - 5	3.10
7th Grade Boys	1 - 6	2.93
8th Grade Girls	1 - 6	2.64
8th Grade Boys	1 - 6	3.00
9th Grade Girls	1 - 6	3.11
9th Grade Boys	1 - 6	2.83
Total	1 - 6	2.93

Other advantages of this sample include its size and the inclusion of both sexes. A number of studies have been limited to groups of 25-50 (1, 3, 10, 14, 29, 30, 31, 56) and only a few contain as many as 150 or more (16, 21, 34, 52).

The use of grade point average over a period of at least 1-1/2 years also distinguishes this group. The grade point average has been shown to be relatively stable over time (13, 20) and therefore this measure of the achievement for these students as of 1957-1958 will probably continue in a similar pattern. Research by both Drews (14) and Terman (54) seems to indicate that these grade point averages represent levels of achievement as measured by group tests as well. Terman's research also points to the relationship between low achievement on both school work and achievement tests and later vocational maladjustment and failure. Thus, the grade point average is both readily acquired and meaningful as a measure of achievement, while that used here has the further advantage of representing grades over time.

Another asset is found in the examination of the socio-economic status of sample subjects. Although the median status of 2.93 is probably well above the average of the total Lansing population, it is considerably below that represented in Terman's work (52) and in other studies such as Bowman (10), Gallagher (19), Haggard (25), and Kimball (30). Most college samples are probably also biased by higher socio-economic status (22).

Finally, mention should be made of the age group represented in this study. It is important that findings in the area of personality and achievement be studied at all ages. However, much of the research found in the literature is limited to college students. Thus, this group of early adolescents provided a needed sample for experimentation.

But since this sample was gifted students, it was recognized that general conclusions from the results would be correspondingly limited. This limitation could have been removed by the use of a control group, a random sample of the total junior high school population. Such a control group would have supplied information regarding the applicability of measures to average as well as gifted students, and in addition some comparative data on personality factors in the gifted versus a random sample of adolescents. However, this additional sample was not acquired, because the high reading ability and intellectual perception of these gifted allowed the choice of mature measures which could be easily and quickly administered. These same measures could not have been used with a random sample in this age range.

Measures

For the gifted sample described in the preceding section, applicable measures were then sought. Three practical requirements immediately limited the possibilities. It was determined that the measures be group tests which

could be developed to use with large samples. In addition, a time limit of 30-45 minutes was set. Finally, to increase the ease of scoring as well as reliability, tests with objective scoring methods were sought.

The personality variables described in the section on the literature lend themselves readily to adjective form. Several forms of adjective check lists have been used in research, and appear to have some adequacy (45). An adjective scale developed by Robert E. Bills (5, 6, 7, 8, 9) was used by him and by Roberts (42) as a measure of self-esteem and discrepancy between real and ideal self. The scale also contained a measure of self-concept. Bills used 49 adjectives which the subject rated on a scale of one to five. Each adjective was rated three times: (1) how much of the time this is like me, (2) how I like myself this way, and (3) how much of the time I would like this to be me. Summated scores for the second and third ratings had reliabilities of .83 and .91 (9) as well as validity judged by several different criteria (5, 6, 7, 8, 42). The correlation between self-esteem and the discrepancy between real and ideal self was $-.77$ (9) showing that these two probably measure similar aspects of personality.

This scale was adapted for research by utilizing the directions and those 19 adjectives which were judged by the experimenter to be most relevant. Other adjectives were added to test the hypotheses made regarding self-concept

and achievement. In addition a few adjectives were included which could be related to the use of talent generally, but for which the literature indicated no hypotheses. In the interest of preventing test set a few adjectives with negative connotation were specifically interspersed in the series. This scale was then considered applicable to test self-concept by rating (1) and self-esteem by rating (2). In the interest of further research the ideal self rating (3) was retained.

The final list of adjectives was as follows:

- | | | |
|------------------|------------------|---------------------|
| 1. academic | 18. enthusiastic | 35. persuasive |
| 2. acceptable | 19. fearful | 36. productive |
| 3. active | 20. free | 37. purposeful |
| 4. adjusted | 21. friendly | 38. rebellious |
| 5. ambitious | 22. impatient | 39. responsible |
| 6. argumentative | 23. independent | 40. scholarly |
| 7. artistic | 24. inspired | 41. scientific |
| 8. attractive | 25. intellectual | 42. secure |
| 9. capable | 26. intelligent | 43. self-sufficient |
| 10. competent | 27. logical | 44. serious |
| 11. confident | 28. mature | 45. sociable |
| 12. conforming | 29. nervous | 46. studious |
| 13. considerate | 30. organized | 47. successful |
| 14. creative | 31. original | 48. teachable |
| 15. dependable | 32. odd | 49. tolerant |
| 16. efficient | 33. optimistic | 50. worthy |
| 17. energetic | 34. persistent | |

The expected direction of response was determined in advance by the experimenter. Although some adjectives may have applied to more than one category, the predictions were as follows. Sociability, social concern, conformity, and self-sufficiency were specified by argumentative, conforming, considerate, dependable, friendly, impatient, independent, odd, rebellious, responsible, self-sufficient, sociable, and tolerant. It was predicted that achievers would rate themselves as conforming, considerate, dependable, independent, responsible, self-sufficient, and tolerant more often than underachievers, with the reverse true for argumentative, friendly, impatient, odd, sociable, and rebellious. Confidence and control were intended in ratings on acceptable, adjusted, attractive, capable, confident, competent, mature, optimistic, secure, successful, and worthy, with the reverse for fearful and nervous. Energy, efficiency, and interest were stated by active, ambitious, efficient, energetic, enthusiastic, inspired, organized, persistent, persuasive, productive, and purposeful. For all of these achievers were predicted to rate themselves above underachievers. Finally in this series of adjectives those most directly related to scholarliness were academic, intellectual, intelligent, logical, scholarly, serious, studious, and teachable. Again, all the adjectives were predicted to be reported as true of themselves more often by achievers than by underachievers.

No predictions were made for a few other adjectives, While it is possible that artistic and scientific are

related to scholarliness, the direction of response was not predicted because no report on the relationship between these aspects of self-concept and achievement were found in the literature. Similarly no prediction was made for . creative, free, and original.

Turning to the search for a scale to measure attitudes, the semantic differential of Charles E. Osgood (40) offered advantages and seemed worthy of further research investigation. Since Osgood has presented a method for adapting his findings, the scales for this research were developed as he directs. The evaluative factor (Factor I) was selected as most applicable for this study. However, it was decided to include two scales each of the other two factors with six scales of Factor I. This totalled ten scales for each concept; six to be utilized for this research and four others to be available for further study. The scales selected were those having the highest loading of the desired factor and the lowest loadings of the other two factors (Table 5).

Because of the time limitation, only ten concepts were chosen for this stage of research. School attitudes were selected for primary interest, and represented by the five concepts school, teacher, studying, learning, and marks. Attitudes toward home and family were presented in the single concept family, and attitude toward others was intended by friends. In addition the usefulness of this measure for self-concept was briefly investigated by the concepts being

TABLE 5
SEMANTIC DIFFERENTIAL¹

Scale	Factor		
	I	II	III
clean - dirty	.82	-.05	.03
fair - unfair	.83	.08	-.07
happy - sad	.76	-.11	.00
honest - dishonest	.85	.07	-.02
nice - awful	.87	-.08	.19
sweet - sour	.83	-.14	-.09

¹(40, p. 37).

approved of (conformity), being intelligent (scholarliness), and myself (self-esteem). These ten concepts were ordered in the effort to vary meanings and limit generalization from one to the next. Directions were also given to discourage reference to completed pages. It was predicted that achievers would rate all ten concepts with more positive value than underachievers.

Thus two types of measures were developed to test the hypotheses of self-concept, self-esteem and the perception of reality. The tests were designated Test I, the adjective scale, and Test II, the semantic differential (see Appendix). These two measures were designed to administer to the gifted sample already described. From the analysis of results, the potentiality of these measures for further research and development was to be determined.

Administration

Tests I and II were then administered during the last week of May and the first week of June, 1958. Arrangements were made in advance by Dr. Drews. In each school testing was to be conducted with the assistance of school personnel as well as Dr. Drews, two research assistants, and this experimenter. In schools 1, 3, and 4 one four hour morning session was scheduled. In school 2 two afternoon sessions of two hours each were scheduled. Students in schools 1, 3, and 4 were to assemble in their respective cafeterias; students in school 2 were to assemble in their library.

These facilities are physically similar in all four schools.

Since all research required the presence of the complete sample, special arrangements were made to conduct further sessions with absent pupils in each school. These sessions were to take place within a week of the original testing. The experimenter and the two research assistants were to share the responsibility for testing these small groups.

The four hour test battery included achievement and problem-solving as well as personality measures. Some of these tests were to be administered to all three grades, others to only one grade. The need to schedule carefully within the allotted time led to a plan whereby achievement and problem-solving tests were to be administered first and followed by personality tests. This examiner was to give all initial instructions for the measures of this research.

The above plan presented one difficulty for this study. The experimental measures were ordered to follow tests requiring intense concentration for at least one hour. It was felt that this would mean restlessness and some negativism by the time scheduled for the measures of this research. During administration it was found that attention was actually diminished after the first tests, and students showed increased negativism by complaints about the testing situation.

Some other unforeseen problems arise in the testing sessions. First, in one school the arranged faculty

assistance failed to appear, causing a delay in testing and difficulties in the plan. In that school discipline proved difficult to maintain, the lunch hour was confused, and students were particularly restless and easily distracted throughout testing.

Further, in all four schools only a limited explanation of the reasons for testing could be offered by the researchers, and in three of these schools comments by school authorities emphasized the importance of good work by the students. Questions were asked again and again by school pupils about where the results would be sent. Students wanted to be assured that their teachers would not see their scores. Although reassurance was offered, the possibility may have remained that their response on the personality tests would have been affected by special motivational factors.

Finally, although the researchers had limited the sample to be tested, the schools added some students whom they deemed eligible. Later investigation showed that IQs were not all within the desired range. The lower limit was an IQ of 99! Although it was not possible to check this, it was the opinion of the four examiners that many of the questions asked about test directions and meanings arose among this less intelligent group. This lengthened testing and in addition made it difficult for this experimenter to assess the importance of questions regarding the research measures of this study.

The questions which did arise during the administration of Tests I and II were predominantly in two areas: the meanings of certain adjectives of Test I, and the use of the self-esteem section (2) of Test I. Adjectives more frequently questioned were academic, adjusted, competent, conforming, intellectual, and optimistic. Since academic was the first word, it was defined each time for the whole group. Other questions were answered individually. It was discovered that adjusted was most often confused with the so-called "adjusted" classes for students needing remedial help. Competent and intellectual were apparently unfamiliar words to those who requested help. Many of those asking about conforming and optimistic had opposite meanings in mind. These difficulties may have obscured results with these adjectives, especially if other students neglected to clarify their definitions before responding.

As mentioned above, a number of students found the directions for the self-esteem section (2) of Test I difficult to apply. The directions were that they rate themselves in Column II on the basis of their response in Column I: "HOW DO YOU FEEL about yourself as described in Column I?" Students apparently sought instead to answer how they felt in general about the adjective. While every effort was made to clarify these instructions, questions during administration and odd patterns of response found later on some tests seemed to indicate that, for at least some of the students, the problem remained.

Thus problems of administration existed in the areas of scheduling limitations, motivational factors, sample changes, and test use. However, testing was conducted essentially in accordance with the plan, and the majority of the students were attentive and cooperative.

Statistical Treatment

Item analysis. The next step in research was the statistical analysis of test responses of the subject sample. In order to analyze items it was first necessary to divide the 270 subjects into achievers and underachievers. Some differences in median achievement (grade point average) of boys versus girls and among the three grades led to a special technique for this division. For each sex in each grade sub-groups were formed. The median grade point average of each of these six sub-groups was used as the dividing point for achievers and underachievers for that group. Thus a total of 135 achievers and 135 underachievers were designated. But, in order to simplify computations and to increase the reliability of responses, these two groups were limited to the 100 achievers and 100 underachievers at the extremes in grade point average. The 70 withdrawn around the medians were proportioned among the six sub-groups according to the total number in that sub-group.

By the above described technique the numbers of boys and girls and of each grade were equalized for achievers and

underachievers (Table 6). In the 7th grade there were 8 achieving girls and 8 underachieving girls, 11 achieving boys and 11 underachieving boys; in the 8th grade there were 29 achieving girls and 30 underachieving girls, 19 achieving boys and 18 underachieving boys; in the 9th grade there were 17 achieving girls and 16 underachieving girls, 16 achieving boys and 17 underachieving boys. This totals 54 achieving girls and 54 underachieving girls, 46 achieving boys and 46 underachieving boys, with further totals of 108 girls and 92 boys, 100 achievers and 100 underachievers. The discrepancy in number between boys and girls was not eliminated. The effect of sex on these results was judged to be less important than the need to maximize sample size.

Item responses were then assembled for the 100 achievers and 100 underachievers. These responses were narrowed into two ratings for each item by division above and below the interval closest to the median response for that item; 2 x 2 Chi Square tables were prepared for each item. These 110 tables were then analyzed by the Chi Square formula including Yates' Correction for Continuity (17, p. 384) using an electronic computer. Where the direction of item response was specifically predicted a one-tailed test of significance was to be applied, for other items a two-tailed test.

Before evaluation of results it was necessary to know how many items would differ by chance alone. It was found that by chance alone 6 of the 110 items would obtain Chi

TABLE 6
ACHIEVERS AND UNDERACHIEVERS

		Grade			
Group		7	8	9	Total
Girls	Achievers	8	29	17	54
	Underachievers	8	30	16	<u>54</u>
					108
Boys	Achievers	11	19	16	46
	Underachievers	11	18	17	<u>46</u>
					92

Squares significant at the .05 level of confidence, and that 1 of these would obtain a Chi Square significant at the .01 level of confidence.

Other analyses. Several other analyses were also deemed necessary. Although the range of IQs was limited to 125 and above, the relationship between IQ and grade point average was determined. A Product-Moment Correlation Coefficient was obtained (17, p. 148).

In addition, following item analysis a "personality score" (P-score) was compiled for each student. This P-score gave equal weight to all the 17 item responses which item analysis showed to discriminate between achievers and under-achievers. For each item a response value from 1 to 5 was used. For the 15 items of Test I this was the actual student response. For the two items from Test II, the scores of 6 to 42 were narrowed to 1 to 5 by division into 5 units of 7 points each. The 17 responses were added to give the P-score. Further study of the relationship between this score and the variables of sex, grade, grade point average, and IQ were then possible.

Because the literature (55) does indicate that sex differences may affect testing in the personality area, the relationship between P-score and sex was investigated. A Point Biserial Correlation Coefficient (17, p. 184) was computed.

Difference in grade also reflects difference in age, and, therefore, the possibility of personality differences affected by maturity arose. T-tests (17, p. 254) were applied to determine whether the mean P-scores for each grade differed significantly.

The P-score was also examined more directly for its relationship to the main purpose of this research, the relation between test items and achievement. For this a Product-Moment Correlation Coefficient (17, p. 148) was computed for P-score and grade point average.

Finally the relationship between IQ and P-score was treated. The correlation between IQ and P-score was determined by a Product-Moment Correlation Coefficient.

RESULTS

Item Analysis

The results of item analysis showed that responses to 17 of the 110 items discriminated between achievers and under-achievers. Eight of these were significant at the .01 level of confidence, the remaining nine at the .05 level of confidence. Of these responses, nine are from the self-concept (1) section of Test I, six from the self-esteem section (2) of Test I and two from Test II. Table 7 presents these results.

Responses to the following items of Test I, self-concept, differentiated achievers from underachievers: academic, argumentative, capable, efficient, intelligent, logical, productive, scholarly, and successful. Academic, argumentative, logical, and scholarly were significant at the .01 level of confidence. Capable, efficient, intelligent, productive, and successful were significant at the .05 level of confidence. On all nine of these adjectives achievers found them more often true of themselves than did under-achievers.

The six items of Test I, self-esteem, for which responses of achievers and underachievers differed significantly were academic, argumentative, fearful, rebellious, scholarly, and studious. Responses to academic, rebellious,

TABLE 7
RESULTS

Test	Item	χ^2	p
I Self-Concept	1. academic	14.143	$< .01$
	6. argumentative	8.019	$< .01^a$
	9. capable	4.066	$< .05$
	16. efficient	5.169	$< .05$
	26. intelligent	5.012	$< .05$
	27. logical	5.805	$< .01$
	36. productive	3.625	$< .05$
	40. scholarly	11.031	$< .01$
I Self-Esteem	47. successful	4.103	$< .05$
	1. academic	6.281	$< .01$
	6. argumentative	4.100	$< .05$
	19. fearful	4.500	$< .05$
	38. rebellious	5.460	$< .01$
	40. scholarly	3.764	$< .05$
II Semantic Differential	46. studious	22.214	$< .01$
	1. school	2.879	$< .05$
	6. marks	12.500	$< .01$

^aTwo-tailed test.

TABLE 8
OTHER ANALYSES: CORRELATION RESULTS

Variable	r	p
IQ and Grade Point Average	.22 ^a	< .01
Sex and P-Score	.03 ^b	not significant
IQ and P-Score	.07 ^a	not significant
P-Score and Grade Point Average	.38 ^a	< .01

^aProduct-Moment Correlation Coefficient

^bPoint Biserial Correlation Coefficient

TABLE 9
OTHER ANALYSES: T-TESTS ON MEAN P-SCORES

Variable	T	df	p
Grades 7 and 8	.1914	132	not significant
Grades 7 and 9	.4575	102	not significant
Grades 8 and 9	.2531	160	not significant

and studious were significantly different at the .01 level of confidence; responses to argumentative, fearful, and scholarly were significantly different at the .05 level of confidence. On all six of these adjectives responses of achievers indicated that they were more satisfied with their self-concept in respect to that adjective than were under-achievers.

Responses to two of the ten concepts in Test II differentiated between achievers and underachievers. These two were school and marks. Responses to marks were significantly different at the .01 level of confidence; responses to school at the .05 level of confidence. In both cases responses of achievers were more positive than responses of underachievers.

Other Analyses

Results of other analyses can also be reported (Tables 8 and 9). The Product Moment Correlation Coefficient for IQ and grade point average was .22 ($p < .01$) revealing that students with higher IQs (even in these upper limits) tend to have higher grades. However, the same coefficient relating P-score and IQ was .07 (not significant). Results of other analyses to determine the relationship between P-score and other variables follow. The Point Biserial Correlation Coefficient for sex and P-score was .03, too low to be significant. T-tests to determine whether mean P-scores of Grades 7, 8, and 9 differed showed no significant

difference among the three grades. The Product-Moment Correlation Coefficient relating P-score and grade point average was .38 ($p < .01$).

DISCUSSION OF RESULTS

Item Analysis

Before a discussion of the content of the results of item analysis, the significance of these results needs to be further clarified. Whereas, as stated in the section on statistical treatment, probability indicates that six items of the 110 would have Chi Squares significant by chance alone at the .05 level of confidence, results show that 17 items were significant at at least this level. Furthermore, at the .01 level of confidence, where only one Chi Square would have been significant by chance alone, 8 of the 17 items were significant. Therefore, the results of this study show differences which did not arise from chance alone.

The 17 items which discriminated between achievers and underachievers may be inspected in the light of the three hypotheses of this research. It should be reiterated that all 17 items were answered as more true of themselves, or more positively, by achievers than by underachievers.

Hypothesis I predicted that achieving students would report self-concepts differing in certain respects from those of underachievers. Nine of the 50 self-concept adjectives did elicit responses revealing this difference. More specific predictions were made that achievers' self-concepts would exceed those of underachievers in the following areas:

introversion, social concern, conformity, and self-sufficiency; confidence and control; efficiency, energy, and interest; and the view of self as an able scholar. This last was predicted to be a basic component of the achiever's self-concept. An examination of the nine significant items in the light of predictions for these items (p. 28 ff.) is revealing. Only one adjective of the nine is in the area called "social adjustment"; that one is the adjective argumentative. The Chi Square for this adjective was highly significant, well beyond the .01 level of confidence, but significant in the opposite direction from that predicted. Argumentative was included in the test to represent non-conformity, and the prediction was that underachievers would report it more often true of themselves than achievers. The results may show that conformity is not characteristic of achievers in all its aspects. However, the evidence of self-sufficiency and independence in achievers may provide a more adequate explanation for their response. Responses to the other eight adjectives were in the predicted direction. Two adjectives were significant in the area of personal adjustment: capable and successful. Interestingly, both of these are adjectives denoting active ability, rather than the more passive descriptive adjectives such as acceptable, adjusted, and attractive. Both also appear to be related to the area of energy, efficiency, and interest, where two adjectives were significant: efficient and productive. Four adjectives were significant in the area of

scholarliness: academic, intelligent, logical, and scholarly. The preponderance of adjectives in the area of scholarliness seems to bear out the prediction that the view of self as an able scholar is a basic component of self-concept as it relates to achievement. Actually the other adjectives, including argumentative, are all related to this self-view in some degree.

Two additional comments can be made. First, while the test was weighted with predictions that the achievers would find adjectives more true of themselves than would underachievers, it is still interesting that all the significant adjectives were those on which achievers rated themselves higher, including the one for which the opposite prediction had been made. This may represent a test response set which has its roots in some form of confidence and positive attitude, particularly when responses are called for in the school setting.

Then, it should also be noted that, with the exception of academic, where a group definition was given, responses to none of the five other frequently questioned words differentiated between the two groups. While it cannot be known whether results were obscured on these words, this remains a possibility.

Hypothesis II was simpler in its form, predicting that achieving students would report greater esteem for themselves, as they see themselves than would underachieving students.

The six significant items were all in the predicted direction. For no item did underachievers show greater self-esteem than achievers. While the results are limited in number, they support the hypothesis to a degree. The problems in the use of this section of the test could have been responsible for some limitation in results. The particular adjectives which differentiated the two groups appear to fall into two categories. Responses to academic, scholarly, and studious are clearly related to an acceptance of self in the scholarly role already noted. Argumentative may fall in the same category, but argumentative, fearful, and rebellious all may have special meaning in relation to adolescence. The responses suggest that achievers feel more control over their adolescent feelings than do underachievers. This suggestion is not out of line with reports of control in achievers found in the literature.

Hypothesis III predicted that more positive attitudes toward school, others, and family would be reported by achievers than by underachievers. This distinction was particularly emphasized for attitudes toward school. The two concepts which differentiated significantly were in the school area: school and marks. The inclusion of only one item each for family and others may well have been insufficient to obtain results. The same may be said of the other three concepts in Test II. It was rather surprising to this experimenter that differences were not found in the

other three school related concepts: teachers, studying, and learning. Certainly these have discriminated with other methods and other samples. The number of negative scores observed during the recording of responses made by achievers for these three may bear out the opinion of some educators that these gifted students are often dissatisfied with what school offers to them. This could be accentuated for these students by current publicity on the inadequacies of education. Perhaps hope lies in the fact that school itself still seems to have positive meaning for gifted achievers!

In summary, the significant material seems to point to achievement as primarily related to aspects of self-concept, self-esteem, and attitude toward environment which are themselves achievement oriented. To this extent the three hypotheses are supported by this research. These results are not surprising when the theory of self-concept is re-examined. The majority of significant items are consistent and would seem to be in line with Lecky's theoretical position (33) emphasizing the "self-consistency" of self-concept and view of environment.

Other Analyses

However, the claim that the significant results of item analysis support the hypotheses needs some further substantiation. The additional analyses made in this research were designed to examine variables other than achievement which might have affected results.

While the role of sex in personality testing is often important (55), the correlation between sex and P-score showed that at least the sum of responses to significant items was not affected by sex. It is still possible that individual items included some for which responses of boys and girls differed. There may also be additional items which would discriminate between achievers and underachievers of one sex only. Such possibilities should be more completely investigated in further research.

Another potential source of bias lies in the use of three grades for subject sample. With this age spread greater differences in maturity are included than with one grade alone. Furthermore, differences found in the statistics of the sample at the three grade levels suggest that the samples for grades 7 and 9 are not complete and may be biased. The possible effect of such bias was examined by the application of T-tests to the mean P-score for each grade (Table 9). The results were far from significant, and appear to indicate that the use of all three grades for this research was defensible.

The effect of IQ on achievement, here measured by grade point average, raises the most serious problem in research of this kind. Gough (21) found a correlation of .47 between IQ and grades, while his test correlated .44 with grades. Both of these figures come from the sample used in cross-validation. In the original study these

correlations were higher, but the correlation between test scores and grades was lower than the correlation between IQs and grades in each of the four schools. Without a control for IQ the test results have unknown meaning. Examination of the analyses of this research shows somewhat more promising results, although the limited IQ range is probably an important factor. The initial correlation of .22 between IQ and grade point average showed that IQ had some relationship to the division of the sample into achievers and under-achievers. This necessitated the further investigation of the results for effect of IQ. The correlation between P-score and grade point average (.38) is somewhat low, particularly since it represents the scores of the same sample used for item analysis. But it is higher than the correlation between IQ and grade point average. In addition, the correlation between IQ and P-score (.07 and not significant) does show that this P-score is relatively free from IQ effect. However, since many of the items appear to be related to the view of self as an able scholar, these results may well be limited to the type of sample used in this research. Further study is now needed.

From these findings it may be concluded that the results of this study do, indeed, point to differences in self-concept, self-esteem, and attitude toward environment which are related to achievement, and which are not contaminated by sex, grade (within grades 7 to 9), or IQ (within the

range of 125-167). The qualifications for grade and IQ do place limitations upon the applicability of this research to the more general school population.

Implications for Further Research

These results indicate several possible directions for further research. First, this data should be reexamined more completely for sex differences, as suggested in the preceding section. In addition, since a 2 x 2 Chi Square examining social status and grade point average showed that those with higher status tend to have higher grades ($\chi^2 = 4.022$, $p < .05$), the influence of social status on test variables also needs to be investigated. Then the next most obvious study on a large scale is cross-validation of these findings with another gifted junior high sample.

Several other research studies could also be conducted using these instruments. Although these tests are too difficult for a random sample of junior high students, it would be possible to use them with high school seniors and with college students. Both comparative information and the possible development of these tests at those levels would make such studies worthwhile.

A further suggestion includes departure from these test forms utilizing the differences this research seems to indicate. From these differences a form of sentence questionnaire or materials for standardized interviews might be developed for use with average students in junior high school.

Another practical area, already being examined in several current projects, is that devoted to an understanding of the factors which lead to this combination of self-concept and achievement. It is the results of these studies which will provide clues for the educators seeking to develop students to their fullest academic potential.

SUMMARY

The purpose of this study was to examine aspects of self-concept and attitude toward environment in relation to achievement. The research was planned as the initial stage in test construction for the measurement of achievement-related personality characteristics.

The review of relevant literature led to three hypotheses. These predicted that achieving students would report (1) self-concepts differing in specified respects from those reported by underachievers, (2) greater self-esteem than underachievers, and (3) more positive attitudes toward environment than underachievers.

The sample for this study included all identified (270) boys and girls with IQs of 125 and above (Stanford-Binet) who attended the 7th, 8th, and 9th grades of the four public junior high schools of Lansing, Michigan. Two tests were developed: an adjective list from which a self-rating on both self-concept and self-esteem were procured and the semantic differential technique applied primarily as a measure of attitude toward environment. The responses of 200 students designated as achievers and underachievers on the basis of grade point average were subjected to item analysis. In addition the variables of sex, grade, and IQ were investigated for their relation to results.

It was found that responses to 17 of the 110 items discriminated between achievers and underachievers. All three hypotheses received some support. It was particularly noted that the majority of discriminating items of self-concept, self-esteem, and attitude toward environment were themselves achievement oriented. Other analyses indicated that results were not contaminated by sex, grade, or IQ.

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APPENDIX

I.S.C.
INDEX OF STATUS CHARACTERISTICS

Directions: Assign the individual or the status parent appropriate values on the scale from "1" (high) to "7" (low) for each of the characteristics selected for the index to be used in the study.

A. AREA LIVED IN

1. Select residential area (or areas) of highest repute in the community.
2. Better suburban and apartment house area; homes with large grounds.
3. Preferred residential areas, adequate grounds; good apartment buildings.
4. Residential neighborhoods with no deterioration; reputed to be average.
5. Area beginning to deteriorate; business or industry entering into it.
6. Area considerably deteriorated but not a slum area; depreciated reputation.
7. Slum Area (or areas) of the community; neighborhood in bad repute.

B. HOUSE TYPE

1. Large houses in good condition; adequate grounds -- 1A, 2A, 1B, 2B.
2. LH in medium condition; MH in good condition; best apartments -- 3A, 3B, 1C, 2C.
3. MH in medium condition; large apts. in well-kept buildings -- 3C.
4. LH and MH in fair condition; apt. buildings in medium condition -- 1D, 2D, 3D.
5. SH in good condition; good apts. in remodelled houses -- 4A, 4B, 5A, 5B.
6. SH in medium condition or fair condition; apts. in fair condition -- 4C, 4D, 5C, 5D.
7. All houses and apts. in bad condition; store fronts et. al. -- 1E, 2E, 3E, 4E, 5E.

Note: Houses are rated according to size -- (LH) = 1 or 2, MH = 3, (SH) = 4 or 5 -- and condition (good) = A or B, (medium) = 2C, (fair) = D, (bad) = E. The twenty possible types are fitted into the seven ratings.

C. OCCUPATION

Classify the individual or status parent according to kind of occupation -- professional, proprietor, business man, white-color worker, manual worker, service and miscellaneous, landowners and farmers -- and then rate the person concerned according to level, consulting the accompanying chart for guidance.

D. SOURCE OF INCOME

1. Savings and investments, inherited -- 50% or more of the income.
2. Savings and investments, gained by the earner -- not retirement pensions.
3. Profits and fees -- including higher executives who share in profits.
4. Salary or commission - including retirement earned thereby. ("Check List")
5. Wages, based upon hourly rates or piece-work. ("Time Card" personnel)
6. Private aid or assistance -- may be supplemented by part-time work.
7. Public relief and non-respectable income, according to reputation.

Alternate and Modifying Indices.

E. EDUCATION

1. Completed one or more years of graduate work at college or university.
2. Graduated from four-year college, university, or professional school.
3. Attended college for two or more years, or equivalent ~~higher~~ education.
4. Graduated from high school, or equivalent secondary education.
5. Attended high school, completed at least one year but did not graduate.

6. Third to eight grade (older persons), shifting to below eighth (young adults).
 7. Below third grade (older persons, shifting to below eighth (young adults).
- F. ETHNIC GROUPS -- ETHNICITY AND ETHNIC SECTS -- COLOR CASTE

- | | |
|---|----------------------------------|
| 1. Old American or Anglo-Saxon | 5. Southern European or Jewish |
| 2. Assimilated American | 6. Eastern European or Near East |
| 3. French Canadian or Irish Catholic | 7. Color Casts - Negro, Oriental |
| 4. Northern European ethnic group or sect | |

OCCUPATIONAL RATINGS

<u>Level</u>	<u>PROFESSIONALS</u>	<u>PROPRIETORS</u>	<u>BUSINESS MEN</u>	<u>WHITE COLLAR WORKERS</u>
1.	Lawyer, doctor, dentist, judge, minister, professor, engineer, ind'l. Chemist, school suptd, coun. vet'n.	Value \$75,000 plus, depending upon nature of the community.	Top executives: president, mgr, etc. of corporations, public utilities, banks, et. al.	Executive secretary of status or organizations; C.P.A; editor of reputed newspaper or magazine.
2.	High school teacher; trained nurse (RN); Chiropract, chiropractor, architect, undertaker, minister (no college)	Value \$20,000 to 75,000.	Assistant, of- fice, & dept. managers or supervisors; mgrs. of medium sized branches; mfrs. agents	Accountant; insurance, stock and bond, real estate salesmen in reputed firms; columnist or editorial writers, etc.
3.	Grade school teacher, optometrist, undertaker's asst. pharmacist (employee); city vet.	Value \$5,000 to 20,000 or similar equity	Mrs. of small branch stores & similar businesses; sales-men (better mdse. & known customers); buyers.	Bank & broker's clerks; secty., sr. postal clerk, R.R. agent, spvsy, staff of telegraph, R.R. pub. utilities, elected civic and county officials, newspaper reporter, etc.
4.		Value or equity \$2,000 to \$5,000	Stenographer, bookkeeper, rural mail clerk; ticket agent; auto salesman; auto, clothing, book, drygoods salesman.	
5.		Value or equity \$500 to 2,000 (Small Proprietors)	Drug store, hardware, grocery, dime store clerks, telephone & beauty operators, dressmaker, practical nurse.	

6.

Value or equity
less than \$500

7.

<u>Level</u>	<u>MANUAL WORKERS</u>	<u>SERVICE & MISCELLANEOUS</u>	<u>LANDOWNERS AND FARMERS</u>
1.			Gentlemen: farmers; large landowners & operators who patronize the local activities
2.			Managers & land opera- tors with active urban life. (20M)
3.	Small contractor who works at or superintends his jobs.	Commercial pilot.	Owners and operators of good mechanized farms (10M).
4.	Construction, fac- tory, or mine foreman; carpenter, electr'n, plumber, welder, master mech; R.R. engineer & trainmen; linotype oper- ator, printer.	Police captain at, al; butcher, tailor, dry cleaner (small town); Pullman conductor.	Small landowners and the "forgotten farmer" who owns a "decent" place.
5.	Apprentice to skilled trades; Time-keeper; R.R. firemen & brakemen; tel. and tel. linemen; medium-skilled factory workers; lead hands, sec- tion chiefs.	Policeman; barber, gas station op'rs.; butcher liquor salesman; head	Tenants on good farms; owners of farms who just manage to make a living.
6.	Semi-skilled factory and production workers; warehouse-men; janitor; watchman; cook.	Taxi and truck drivers; baggage; delivery man; gas-station at- tendant; waiter or wait- ress.	Sharecroppers; esta- blished farm laborers; subsistence farmers who "work out".
7.	Laborer, miner, mill hand; migrant worker; section hand; scrub woman, laundress.	Domestic servant; bus boy, etc. <u>Reputed lawbreakers.</u>	Migrant workers, un- established and does not want to be.

Name: _____

School: _____

Grade: _____

Date: _____

INSTRUCTIONS

There is a need for each of us to know more about ourselves, but seldom do we have the opportunity to look at ourselves as we are or as we would like to be. On the following page is a list of terms that to a certain degree describe people. Take each term separately and apply it to yourself by completing the following sentence:

I AM A (AN) _____ PERSON.

The first word in the list is merry; so you would substitute this term in the above sentence. It would read -- I am a merry person.

Then decide HOW MUCH OF THE TIME this statement is like you, i.e. is typical or characteristic of you as an individual, and rate yourself on a scale from one to five according to the following key.

1. Seldom, is this like me.
2. Occasionally, this is like me.
3. About half of the time, this is like me.
4. A good deal of the time, this is like me.
5. Most of the time, this is like me.

Select the number beside the phrase that tells how much of the time the statement is like you and insert it in Column I on the next page.

EXAMPLE: Beside the term merry number two is inserted to indicate that--
Occasionally, I am a merry person.

Now go to Column II. Use one of the statements given below to tell HOW YOU FEEL about yourself as described in Column I.

1. I very much dislike being as I am in this respect.
2. I dislike being as I am in this respect.
3. I neither dislike nor like being as I am in this respect.
4. I like being as I am in this respect.
5. I very much like being as I am in this respect.

You will select the number beside the statement that tells how you feel about the way you are and insert the number in Column II.

EXAMPLE: In Column II beside the term merry, number one is inserted to indicate that I very much dislike being as I am in respect to the term, merry.
Note that "being as I am" refers to the way you described yourself in Column I.

Finally, go to Column III; using the same term, complete the following sentence:

I WOULD LIKE TO BE A (AN) _____ PERSON.

Then decide HOW MUCH OF THE TIME you would like this trait to be characteristic of you and rate yourself on the following five point scale:

1. Seldom, would I like this to be me.
2. Occasionally, I would like this to be me.
3. About half of the time, I would like this to be me.
4. A good deal of the time, I would like this to be me.
5. Most of the time, I would like this to be me.

You will select the number beside the phrase that tells how much of the time you would like to be this kind of a person and insert the number in Column III.

EXAMPLE: In Column III beside the term merry, the number five is inserted to indicate that Most of the time, I would like to be this kind of a person.

Start with the word academic and fill in Columns I, II and III before going on to the next word. There is no time limit. Be honest with yourself so that your description will be a true measure of how you look at yourself.

EX. merry

2 | 1 | 5

I II III

I II III

1. academic			
2. acceptable			
3. active			
4. adjusted			
5. ambitious			
6. argumentative			
7. artistic			
8. attractive			
9. capable			
10. competent			
11. confident			
12. conforming			
13. considerate			
14. creative			
15. dependable			
16. efficient			
17. energetic			
18. enthusiastic			
19. fearful			
20. free			
21. friendly			
22. impatient			
23. independent			
24. inspired			
25. intellectual			

26. intelligent			
27. logical			
28. mature			
29. nervous			
30. organized			
31. original			
32. odd			
33. optimistic			
34. persistent			
35. persuasive			
36. productive			
37. purposeful			
38. rebellious			
39. responsible			
40. scholarly			
41. scientific			
42. secure			
43. self-sufficient			
44. serious			
45. sociable			
46. studious			
47. successful			
48. teachable			
49. tolerant			
50. worthy			

DIRECTIONS

NAME: _____
 SCHOOL: _____
 GRADE: _____ DATE: _____

The purpose of this study is to measure the meanings that different things have to different people. One way of describing the meaning of something is to judge it against a series of descriptive scales. In taking this test, please make your judgments on the basis of what these things mean to you. On each page of this booklet you will find a different concept to be judged and beneath it a set of scales. The scales consist of a pair of descriptive opposites such as fair-unfair. You are to rate the concept on each of these scales.

HERE IS THE WAY YOU ARE TO USE THE SCALES:

If you feel the concept at the top of the page is very closely related to one end of the scale, you should place your check mark as follows:

cold X : _____ : _____ : _____ : _____ : _____ : _____ hot

or

cold _____ : _____ : _____ : _____ : _____ : _____ : X hot

If you feel that the concept is quite closely related (but not extremely) to one side as opposed to the other, you should check as follows:

active _____ : X : _____ : _____ : _____ : _____ : _____ passive

or

active _____ : _____ : _____ : _____ : _____ : X : _____ passive

If the concept seems only slightly related to one side of the scale as opposed to the other, you should check as follows:

strong _____ : _____ : X : _____ : _____ : _____ : _____ weak

or

strong _____ : _____ : _____ : _____ : X : _____ : _____ weak

If you consider the concept to be neutral on the scale, both sides equally associated, or if the scale is completely irrelevant, then you should check the middle space on the scale, as follows:

hazy _____ : _____ : _____ : X : _____ : _____ : _____ clear

or

hazy _____ : _____ : _____ : X : _____ : _____ : _____ clear

The success of this method depends upon how accurately you describe your own picture of the concepts. Work at a fairly high speed without worrying or puzzling over individual items, but at the same time be as careful and accurate as you can. Remember to describe your own personal ideas.

GO AHEAD IN ORDER -- PLEASE DO NOT LOOK BACK AT YOUR COMPLETED PAGES!

SCHOOL

sweet _____ : _____ : _____ : _____ : _____ : _____ : _____ sour

dishonest _____ : _____ : _____ : _____ : _____ : _____ : _____ honest

large _____ : _____ : _____ : _____ : _____ : _____ : _____ small

happy _____ : _____ : _____ : _____ : _____ : _____ : _____ sad

fast _____ : _____ : _____ : _____ : _____ : _____ : _____ slow

weak _____ : _____ : _____ : _____ : _____ : _____ : _____ strong

unfair _____ : _____ : _____ : _____ : _____ : _____ : _____ fair

passive _____ : _____ : _____ : _____ : _____ : _____ : _____ active

nice _____ : _____ : _____ : _____ : _____ : _____ : _____ awful

dirty _____ : _____ : _____ : _____ : _____ : _____ : _____ clean

STUDYING

sweet _____ : _____ : _____ : _____ : _____ : _____ : _____ sour

dishonest _____ : _____ : _____ : _____ : _____ : _____ : _____ honest

large _____ : _____ : _____ : _____ : _____ : _____ : _____ small

happy _____ : _____ : _____ : _____ : _____ : _____ : _____ sad

fast _____ : _____ : _____ : _____ : _____ : _____ : _____ slow

weak _____ : _____ : _____ : _____ : _____ : _____ : _____ strong

unfair _____ : _____ : _____ : _____ : _____ : _____ : _____ fair

passive _____ : _____ : _____ : _____ : _____ : _____ : _____ active

nice _____ : _____ : _____ : _____ : _____ : _____ : _____ awful

dirty _____ : _____ : _____ : _____ : _____ : _____ : _____ clean

BEING INTELLIGENT

sweet _____ : _____ : _____ : _____ : _____ : _____ : _____ sour

dishonest _____ : _____ : _____ : _____ : _____ : _____ : _____ honest

large _____ : _____ : _____ : _____ : _____ : _____ : _____ small

happy _____ : _____ : _____ : _____ : _____ : _____ : _____ sad

fast _____ : _____ : _____ : _____ : _____ : _____ : _____ slow

weak _____ : _____ : _____ : _____ : _____ : _____ : _____ strong

unfair _____ : _____ : _____ : _____ : _____ : _____ : _____ fair

passive _____ : _____ : _____ : _____ : _____ : _____ : _____ active

nice _____ : _____ : _____ : _____ : _____ : _____ : _____ awful

dirty _____ : _____ : _____ : _____ : _____ : _____ : _____ clean

TEACHERS

sweet _____ : _____ : _____ : _____ : _____ : _____ : _____ sour

dishonest _____ : _____ : _____ : _____ : _____ : _____ : _____ honest

large _____ : _____ : _____ : _____ : _____ : _____ : _____ small

happy _____ : _____ : _____ : _____ : _____ : _____ : _____ sad

fast _____ : _____ : _____ : _____ : _____ : _____ : _____ slow

weak _____ : _____ : _____ : _____ : _____ : _____ : _____ strong

unfair _____ : _____ : _____ : _____ : _____ : _____ : _____ fair

passive _____ : _____ : _____ : _____ : _____ : _____ : _____ active

nice _____ : _____ : _____ : _____ : _____ : _____ : _____ awful

dirty _____ : _____ : _____ : _____ : _____ : _____ : _____ clean

LEARNING

sweet _____ : _____ : _____ : _____ : _____ : _____ : _____ sour

dishonest _____ : _____ : _____ : _____ : _____ : _____ : _____ honest

large _____ : _____ : _____ : _____ : _____ : _____ : _____ small

happy _____ : _____ : _____ : _____ : _____ : _____ : _____ sad

fast _____ : _____ : _____ : _____ : _____ : _____ : _____ slow

weak _____ : _____ : _____ : _____ : _____ : _____ : _____ strong

unfair _____ : _____ : _____ : _____ : _____ : _____ : _____ fair

passive _____ : _____ : _____ : _____ : _____ : _____ : _____ active

nice _____ : _____ : _____ : _____ : _____ : _____ : _____ awful

dirty _____ : _____ : _____ : _____ : _____ : _____ : _____ clean

MARKS

sweet _____:_____:_____:_____:_____:_____:_____sour

dishonest _____:_____:_____:_____:_____:_____:_____honest

large _____:_____:_____:_____:_____:_____:_____small

happy _____:_____:_____:_____:_____:_____:_____sad

fast _____:_____:_____:_____:_____:_____:_____slow

weak _____:_____:_____:_____:_____:_____:_____strong

unfair _____:_____:_____:_____:_____:_____:_____fair

passive _____:_____:_____:_____:_____:_____:_____active

nice _____:_____:_____:_____:_____:_____:_____awful

dirty _____:_____:_____:_____:_____:_____:_____clean

FRIENDS

sweet _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ sour

dishonest _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ honest

large _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ small

happy _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ sad

fast _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ slow

weak _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ strong

unfair _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ fair

passive _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ active

nice _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ awful

dirty _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ clean

FAMILY

sweet _____ : _____ : _____ : _____ : _____ : _____ : _____ sour

dishonest _____ : _____ : _____ : _____ : _____ : _____ : _____ honest

large _____ : _____ : _____ : _____ : _____ : _____ : _____ small

happy _____ : _____ : _____ : _____ : _____ : _____ : _____ sad

fast _____ : _____ : _____ : _____ : _____ : _____ : _____ slow

weak _____ : _____ : _____ : _____ : _____ : _____ : _____ strong

unfair _____ : _____ : _____ : _____ : _____ : _____ : _____ fair

passive _____ : _____ : _____ : _____ : _____ : _____ : _____ active

nice _____ : _____ : _____ : _____ : _____ : _____ : _____ awful

dirty _____ : _____ : _____ : _____ : _____ : _____ : _____ clean

BEING APPROVED OF

sweet _____ : _____ : _____ : _____ : _____ : _____ : _____ sour

dishonest _____ : _____ : _____ : _____ : _____ : _____ : _____ honest

large _____ : _____ : _____ : _____ : _____ : _____ : _____ small

happy _____ : _____ : _____ : _____ : _____ : _____ : _____ sad

fast _____ : _____ : _____ : _____ : _____ : _____ : _____ slow

weak _____ : _____ : _____ : _____ : _____ : _____ : _____ strong

unfair _____ : _____ : _____ : _____ : _____ : _____ : _____ fair

passive _____ : _____ : _____ : _____ : _____ : _____ : _____ active

nice _____ : _____ : _____ : _____ : _____ : _____ : _____ awful

dirty _____ : _____ : _____ : _____ : _____ : _____ : _____ clean

MYSELF

sweet _____ : _____ : _____ : _____ : _____ : _____ : _____ sour

dishonest _____ : _____ : _____ : _____ : _____ : _____ : _____ honest

large _____ : _____ : _____ : _____ : _____ : _____ : _____ small

happy _____ : _____ : _____ : _____ : _____ : _____ : _____ sad

fast _____ : _____ : _____ : _____ : _____ : _____ : _____ slow

weak _____ : _____ : _____ : _____ : _____ : _____ : _____ strong

unfair _____ : _____ : _____ : _____ : _____ : _____ : _____ fair

passive _____ : _____ : _____ : _____ : _____ : _____ : _____ active

nice _____ : _____ : _____ : _____ : _____ : _____ : _____ awful

dirty _____ : _____ : _____ : _____ : _____ : _____ : _____ clean

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