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TABLE OF CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

GIFTED UNDERACHIEVERS AND HIGHACHIEVERS FIVE YEARS FOLLOWING HIGH SCHOOL GRADUATION

CHAPTER I

INTRODUCTION

Interest in the gifted is not a new phenomenon. Throughout recorded history numerous references have been made to persons of exceptional talent. In ancient Greece and Rome the genius or wise man was the one who sought the Truth and interpreted these Truths to others. The gifted individual was held in high esteem. In Plato's state philosopher kings were to be at the pinnacle of the hierarchy. From the Renaissance to the present, our Western Culture has continued to nurture talent.

Since World War II interest in gifted individuals has received new impetus. Schools have become more involved in the phenomenon because of education's role in our American society. With urbanization and automation a good education has become a relatively greater asset to man.

The Educational Policies Commission (1950) felt that superior students were a group too often neglected. The Commission inferred that schools had the responsibility and obligation to improve the educational opportunities available to gifted students. The major reason why schools should have been concerned about the gifted was the waste of human talent. The phamplet (Educational Policies Commission, pp. 85-86) stated, "A

considerable proportion of the potential abilities of gifted individuals is at present lost to society through underdevelopment, underuse, or misuse. Some of this waste is attributable to economic barriers to educational and vocational opportunities. . . . And some human talent is wasted because the schools fail; to identify, to challenge, to hold, or to educate adequately some of their gifted students."

Tannenbaum also thought that one of the roles of schools in America was to nurture talent. He (1958, p. 38) stated, "The present interest /in the gifted/ in America may augur a real step forward toward the ideal of full development of individual potential within a system of universal education."

Perusal of professional journals of the 1950's reflected the interest among educators in study of the gifted. Topics ranged from philosophical-historical implications to classroom applications. One topic receiving considerable attention was a merging of two research areas, "the academically talented" and "academic underachievement." The advent of Sputnik resulted in a greater awareness to the problem of the gifted underachiever.

Education's responsibility in alleviation of student underachievement seemed justified. The Rockefeller Report on Education (1958, p. 33) stated, "Democracy is not to be conceived as an invitation to share a common mediocrity but as a system that allows each to express and live up to the special excellence that is in him." The rationale for concern about underachievement was aptly stated in the U.S. Office of Education publication entitled Guidance for the Underachiever with Superior Ability (Miller, 1961, p. 2):

> We cannot afford to waste potential talent. Yet, of the high school students who rank in the top third in intellectual ability, 40 per cent do not enter college. . . . We may very well be discarding the most creative minds of the rising generation and squandering a resource already scarce. . . . /the underachievers/ problems may correspond to major causes of attrition among seemingly able students.

If educators should be concerned about underachievement, what is "underachievement" and who are "underachievers"? English and English (1958, p. 570) listed these definitions:

> Underachievement: performance poorer than predicted from an aptitude measurement. Underachiever: a person who does not perform in specified ways as well as expected from certain known characteristics or previous record: specif., a student who does not accomplish as much in school as would be expected from his measured intelligence.

Bresee made this comment about underachievement (1956, p. 2), "Not only are the notions of underachievement based on a series of value judgments, but they are clearly functions of the concept of intelligence." From the above definitions one could infer that a gifted student would be expected to perform at a higher level than would be expected from a student of average or below average intelligence.

If a gifted student does not achieve or perform at a high level, he is an underachiever. Reflecting the philosophy of wasted talent and the role of education was French's statement (1960, p. 392):

> The maximum welfare for a group is achieved when each member of the group contributes as much as he is able. . . . Extraordinary talent unchanneled or unevoked is a tremendous waste. These feelings have caused many educators to be concerned about the achievement of the gifted because the gifted child is seen as the greatest underachiever in school. . . . Their achievement is further below the limits of their capacity than any other group.

Examination of research on underachievement might be more confusing than helpful in understanding academic underachievement. Investigators have explored many factors which might be related to a student's academic achievement, e.g. personality, interests, socio-economic conditions, and

creativity. The diversity of research on this topic is obvious. However, apparently conflicting results are reported in different studies to add to the dilemma of understanding academic underachievement.

Much of the problem of conflicting results can be attributed to inconsistencies in definition and research design. The concept of academic underachievement has been used in studies involving individuals at different academic levels, individuals of different levels of ability, individuals of different levels of achievement, and different criteria of ability and of achievement. Such inconsistencies prompted Thorndike (1963) to prepare a monograph on The Concepts of Over- and Underachievement. Since underachievement represents a discrepancy between actual performance and some standard of expected or predicted performance, Thorndike stated that we actually refer to the imperfectness of our predictions. He offered research designs which he hoped would bring about fewer and better publications. A more comprehensive review of the book will be given in a later chapter.

Another dimension of research design in academic underachievement which often has been listed as "needed research" is that of longitudinal studies. Fliegler and Bish (1959) note the need for longitudinal research. A 1964 publication of the U. S. Office of Education titled Research Trends and Needs in Educating the Gifted: A Critique (Gallagher, p. 14) lists as number one in the section on research strategies, "More research should be conducted and supported on a long range and programmatic basis." Unfortunately, reported longitudinal studies of talented students for over three years duration are almost nonexistent. A notable exception is the monumental work of Terman and associates in their Genetic Study of Genius.

The greatest number of studies in underachievement have been conducted on students at the college level and at the high school level. Fewer studies have been done on students at the junior high school and elementary school levels. Since the majority of studies have been initiated by college personnel or graduate students, the accessibility to college students and to college records has helped to explain the preponderance of college level studies. Also, students located in one educational institution for a period of three or four years have provided a captive sample for investigators. As students graduate to the next higher level in an educational program, their diversity into many different physical environments has complicated the process of continued investigation.

Cross-sectional studies have shown that underachievement occurs at all levels of education. On the basis of such studies, investigators have presupposed that certain relationships between early and later development do exist. Whether or not the relationships really do exist is open to doubt. Research proof or demonstration is needed.

Supporting the need for longitudinal research is one area identified by Miller (1961, p. 83) as being, "What happens to underachievers after they leave school? Do they continue to manifest their underachieving behavior in their vocational and community living or is academic underachievement a phenomenon associated only with schools?" Assuming that underachievement is a waste of talent, assuming that gifted individuals have the ability to succeed in college, and assuming that gifted individuals who do not go to college are wasting part of their talent (Educational Policies Commission, 1950; Miller, 1961; French, 1960), high school underachievers would be expected to do

poorly if they attended college and would be expected to be less successful in their work experience. Miller points out the need for research to substantiate the hypotheses.

If several investigators cite the need for longitudinal studies, the reasons for the lack of such studies should be explored. Van Dalen (1962, pp. 208-210) states, "The longitudinal technique is generally considered the most satisfactory method, but the cross-sectional technique is more commonly used because it is less expensive and less time consuming." For a successful project considerable financial support and continuity of personnel over a number of years is essential. Van Dalen identifies strengths and weaknesses in both techniques.

Design problems should not eliminate research in the apparently needed area of longitudinal studies of academically gifted underachievers. In view of the research needs identified by Gallagher and by Miller, the purpose of this study was to examine the activities of a group of gifted high school graduates classified as underachievers for an interval of five years. Since most bachelor degree programs are considered to be the equivalent of a four year college program, the five year interval would permit students to complete a college program and to enter graduate school or employment. Following a review of the literature a formal statement of the problem will be developed.

CHAPTER II

REVIEW OF THE LITERATURE

An annotated bibliography covering publications of the past two decades on the topics of the "gifted" and "underachievement" would fill more than one volume. Such a procedure would be of little value to this investigation. Review of only published longitudinal studies on gifted underachievers would be of little value because of the limited number of studies. A more logical approach would be to review selected studies to illustrate the nature of research in underachievement at various school levels. Then, review of research methodology would seem appropriate. Therefore, the review will highlight early research on the gifted, underachievement, longitudinal studies on underachievement, and research methodology in underachievement.

Early Studies

Review of the beginning of formal research on the gifted might help to explain the trend which the more recent research has taken on underachievement. The rise in interest for research on giftedness somewhat parallels the rise of the scientific method and of the growth of the testing movement. In the western hemisphere the publication of Sir Francis Galton's Hereditary Genius in 1869 focused attention of the gifted child. However, little investigation followed the publication.

Terman (1925) in his preface of volume I presented the following reasons for the lack of investigation:

> 1. The influence of current beliefs, partaking of the nature of superstitions, regarding the essential nature of the Great Man, who has commonly been regarded by the masses as qualitatively set off from the rest of mankind, the product of supernatural causes, and moved by forces which are not to be explained by forces which are not to be explained by the natural laws of human behavior.
>
> 2. The widespread belief, hardly less superstitious in its origin, that intellectual precocity is pathological.
>
> 3. The vigorous growth of democratic sentiment in western Europe and in America during the last few hundred years, which has necessarily tended to encourage an attitude unfavorable to a just appreciation of native individual differences in human endowment.
>
> 4. The tardy birth of the biological sciences, particularly genetics, and of the sciences of psychology and education.

With the introduction of the Stanford-Binet Test of Intelligence in 1916 interest was centered on individual differences in America. The full range of human abilities was investigated. By the 1920's evidence was being accumulated to refute the belief that gifted children were peculiar, eccentric, or maladjusted. The outstanding contributions were from Lewis Terman and associates and from Leta Hollingworth (1926). Their investigations will be reviewed later in the chapter under the section on longitudinal studies.

As mentioned, early studies of the gifted tended to reflect the development of the testing movement in the United States. Probably one of the studies which first emphasized underachievement was by Stone (1922). He pointed out the disparity between intelligence and scholarship. With intelligence tests being given to many persons, Stone found that several who scored high on a human ability test did not receive high marks in school. Another investigator (Wolf, 1938) published an article

giving the historical background of the study of personality in relation to success or failure in academic achievement. He reflected the interest in the relationship of personality to underachievement.

Among investigators pursuing underachievement, Harris (1940) and Stagner (1933) provided excellent reviews of the literature on underachievement prior to their studies. Paralleling the development of testing was the use of rating scales to evaluate personality in the earlier studies. In his study, Stagner used the Bernreuter Personality Inventory.

Conklin (Bresee, 1956) and Cohler (1941) were among the first to investigate underachievement specifically with highly intelligent pupils. Cohler found disparities between achievement and intelligence both numerous and large. He suggested that achievement is a resultant of forces other than those measured by intelligence. Conklin, whose study was done in 1929 attempting to analyze 670 variables with limited statistical techniques, found the highly intelligent school failures and non-failures to be more alike than unlike. Research and statistical methodology were limiting factors on the interpretation of results from the last study.

In the latter 1940's and early 1950's investigation into underachievement was reemphasized. Most of the work was at the college level. This was reasonable because subjects were easier to obtain since they were on campus. Also, admissions officers were concerned with locating the "poor risks" who planned to enter college. Public and professional concern also was being expressed about the quality of educational programs for the gifted. By the middle of the 1950's investigations were being conducted in the secondary and elementary schools.

Studies At Different Educational Levels

Investigations which are representative of the more recent research on underachievement will be reported. Attempting to simply list all of the articles, essays, and dissertations on underachievement would prove to be an almost impossible task. Studies which are included in this section were selected to illustrate the type of research at the elementary school, high school, and college levels.

The majority of investigations have occurred at the college level for reasons previously stated. Studies tend to be grouped into areas such as personality, socio-economic influences, and non-intellectual factors. In the area of personality were studies by Burgess (1953), Gebhart and Holt (1958), and Raley (1959). The first two studies used contrasting groups of over- and underachievers to assess personality. Raley investigated high-academic achievers in an attempt to determine their personality traits. Morgan (1952) also investigated personality variables related to achievement. His subjects were 136 male college freshmen with obtained ACE scores of 135 and above. They were classified as achievers or non-achievers on the basis of grade point average. He found that the achievers scored higher on the dominance scale of the Thematic Apperception Test. He found no significant differences on the scales of the Minnesota Multiphasic Personality Inventory. Most studies using some type of group personality test found few if any differences on each of the scales or sections of the test between the overachievers and the underachievers. Investigations into this area tended to decline by the 1960's having used most of the personality tests available.

Representative of other college level investigations were Lum

(1960) who reported a comparison of under- and overachieving female college students and Boyce (1956) who conducted a comparative study of overachieving and underachieving college students on factors other than scholastic aptitude. These studies reflected the interest and use of improved statistical techniques such as factor analysis and discriminate analysis applied to the investigation of underachievement.

In relation to follow-up Schmelzlee (1964) conducted a study to determine the progress of college freshmen after acquiring probationary status. With a total N of 1125 he found that 28.7% were on probation at the end of the first semester. Of this group 68% improved their GPA, 25% remained the same, and 7% dropped behind. Of the original 28.7% who were placed on scholastic probation, 19% remained to graduate.

Research on underachievement was an important aspect of the secondary school by the 1960's. This investigator (Angelino and Hall) conducted a study of temperament factors of highachieving and underachieving academically talented high school seniors. A new group form of the Rorschach developed by Stone, the S-O Rorschach Test, was administered to the subjects. The groups differed on tact and persistence. The same blot area responses, white space, are used to assess persistence and rigidity on the test. Law and Norton (1962) found almost identical results using Stone's test on another group of subjects.

Langan (1962) conducted a study using a number of variables assumed capable of accounting for differences between gifted achievers and underachievers. Included among her findings were: fathers of the achievers had more education; achievers found greater satisfaction in school; achievers had more academic interests and hobbies; achievers had

greater restrictions in social life; and no difference was found in socio-economic level between the two groups. Subjects were students in New York City high schools.

Smykal (1962) investigated the home environmental variables related to achieving and underachieving academically high school students. His subjects were 60 high school students and their parents. He found support to the idea that underachievement, in whatever area of endeavor, was apparently an aspect of an underlying broader personality behavior pattern.

Somewhat in conflict was the study of Ellis (1962). She found that family background was important in distinguishing between college and non-college students of high ability. Also, plans of the non-college group were more indefinite. The groups were investigated approximately two years after high school graduation.

A new deminsion of gifted research in the 1960's was creativity. An example of the research was a study conducted by Laird (1964) with a group of high school students. He found a significant difference between the gifted and the non-gifted in creativity and imagination. The non-gifted group was significantly less stable and controlled, and more insecure and tense than the gifted group. The Kinget Drawing-Completion Test was used to assess creativity and imagination.

At the elementary school level a study by Norman, Clark and Bessemer (1962) compared two groups of gifted children, achievers and non-achievers, with respect to age and sex differences, types of I.Q., and patterns of school achievement. The sample was drawn from the sixth grade students in Albuquerque. They found: achievers were significantly younger than non-achievers; sex differences occurred, the gifted boys

being more variable; and non-achievers were significantly lower in spelling.

Gallagher (1959) reported on the gifted child in the elementary school. He stated that a school in a superior socio-economic community would have up to three times as many students in the higher levels of I.Q. as measured by the Stanford-Binet than a school in an average community.

Torrance (1962) has extended the research on creative talent to the elementary school level. He found what appeared to be "slumps" in the development of creative talent based on cross-cultural studies. This raised the question of a possibility of a relationship between creative ability "slumps" and the inception of underachievement.

An article on underachievement which would be applicable to all grade levels was by Roth and Meyersburg (1963). Their thesis was the non-achievement syndrome. They characterized the syndrome (Roth and Meyersburg, p. 538) as being:

1. Poor academic achievement
2. General self-depreciation; lack of recognition of pleasure at "being"
3. No clear system of personal goals or values
4. Vulnerability to disparagement by others
5. Immature relations with parents
6. Frequent depressions
7. Lack of insight about self and others
8. Free-floating anxiety

They summarized that the entire dynamic picture was similar to that encountered in depressive disorders. The syndrome might be a specific case of depression.

Gowan (1957) also formulated a statement on the dynamics of underachievement. He listed the following common factors: 1) lack of academic and occupational choice; 2) lack of goals or impossible ones

in meeting task demands in childhood; 3) lack of maturity, responsibility, and seriousness of interests; 4) disinterest in others; 5) apathetic withdrawal from a socially oriented perspective of life; 6) lack of dominance, persuasiveness, and self-confidence; 7) weak ego controls; 8) authoritarianism in the home or in the individual himself; 9) withdrawal and self-sufficiency; and 10) psychotic or neurotic tendencies.

The preceeding sample of publications on underachievement indicated the interest in underachievement at all levels of education and the presence of underachievement at all levels of education. Articles by Gowan and Roth and Meyersburg represented the desire among many researchers to more fully explain or categorize the underachiever. The problem in such a procedure was the individual who exhibited several of the traits listed but was not an underachiever.

Longitudinal Studies

A more comprehensive report will be made of longitudinal studies in underachievement of gifted individuals. As mentioned earlier, reported studies are best characterized by their absence in the literature. A few studies have followed a group of subjects from one educational level to the next higher one. Representative of this type of study is one (Frankel, 1960) in which fifty pairs of males matched on I.Q., school entrance examination score, and age were examined. One group was classified as achieving and the other group was classified as underachieving. Subjects were high school students of high intellectual ability. One of conclusions (Frankel, p. 179) was, "Notwithstanding the superior intellectual ability of the two groups, the ninth year junior high school record

left doubt that the two groups performed differently in terms of academic achievement. In general, the achievers maintained their high scholastic record while the performance of the underachievers deteriorated." He recognized the continuation of underachievement from junior high school into senior high school.

A greater number of studies followed the students from high school into college. Two reasons might account for the high number: 1) college records containing high school data are easily accessible to college personnel who most often conduct the research, and 2) colleges are interested in selecting students who are more apt to be successful in college. Holland and Nichols (1964), Long (1964), Giusti (1964) and Sharp (1962) are representative of research in this area. Although not specifically treating underachievement, the studies did recognize that standardized test scores were not consistent predictors of college success. Some of the students who had high test scores in high school did not succeed in college. They were underachievers.

Fliegler (1957) attempted to distinguish two types of underachievers, the situational and the long-term underachievers. He found the long-term underachiever to have problems stemming from the home apparently from childhood. Problems of the situational underachievers came primarily from the school environment. Also, he questioned the propriety of evaluating the underachiever's performance against his intellectual potential. This was the type of procedure Tulsa schools used in granting teacher grades for the time the Class of 1960 was in the public schools. Fliegler felt that such a practice might be appropriate from a mental hygiene point of view but would intensify the feeling of failure.

In more recent years an excellent study in underachievement of talented high school students was conducted by Shaw and McCuen (1960). This was a well-conceived longitudinal approach to underachievement using the retrospective method of investigation. They started with 72 achieving and 72 underachieving eleventh and twelfth graders with I.Q.'s over 110. Significant evidence of differences in achievement in school records was found for the boys back to the third grade and nonsignificant differences were found in the same direction back to the first grade. For the girls significant differences were found to extend back to the ninth grade with nonsignificant differences going back to the sixth grade. This study suggested the continuation of underachievement from one educational level to another.

Two of the pioneer contributors to this area were Hollingworth and Terman. Hollingworth (1926) used intelligence tests for organizing experimental classes for children with I.Q.'s of 180 and above. She reported data on the social adjustment problems of the gifted. Also, she reported the effect of special programs for the gifted in relation to their scholastic achievement.

Terman's monumental investigation of the Genetic Study of Genius began in the spring of 1921 with a grant from the Commonwealth Fund of New York City. The two purposes of the project were to find what traits characterized children of high I.Q. and to follow them for as many years as possible to see what kind of adults they might become. Over a thousand subjects with I.Q.'s of 140 and above were selected.

He (Terman, et. al., 1925) found that children of high I.Q. were, in general, appreciably superior to unselected children in physique, health, and social adjustment. They were vastly superior in their mastery

of school subjects as shown by a three-hour battery of achievement tests. He refuted the belief that gifted children were usually unusual or one-sided.

In volume IV (Terman, et. al., 1947) results of the twenty-five year follow-up are given. The average age of the group was approximately thirty-five years. The span of time was from 1921 to 1946. At this period of life adult careers of the subjects were rapidly taking form.

Although the group of subjects were above the 99th percentile in scholastic ability or intelligence, marked differences were noted during the first twenty years of the study. In vocational success the subjects ranged from world prominence to semiskilled labor. Similar conditions existed in their educational histories. Therefore, under-achievement was a problem among some of the highly gifted.

To investigate the problem of underachievement, contrasting groups of the most successful and the least successful were identified. Only men were studied because of the problem of estimating success of women. The investigators felt that the majority of women aspired to be housewives; consequently, many were willing to accept any reasonably pleasant and respectable employment that would bridge the gap between school and marriage. The result was that several highly gifted women worked as secretaries, filing clerks, elementary teachers, and telephone operators.

Evaluation of success proved to be a serious problem in the project. Their approach was as follows (Terman, 1947, pp. 311-312):

> How shall success be evaluated? Among the criteria which almost everyone would want to consider are status on the vocational ladder, earned income, amount of education, moral character, marriage, social adjustment, and health; but it goes without saying that no one of these can be made the sole criterion. . . .

> Greatness of achievement is relative both to the prevailing patterns of culture and to the individual's personal philosophy of life; there neither exists nor can be devised a yardstick for its measurement. . . .
>
> The primary criterion of success was the extent to which a subject had made use of his superior intellectual ability.

Relative success was determined from the ratings of three judges who agreed upon certain general principles. For subjects who completed a graduate university course, academic marks and professional recognition counted heavily. Earned income was less important except where it was clearly indicative of success. Judges were cautioned not to give undue emphasis to earned income. Success in college was easier to determine by the evidence of completion of a degree, scholarships received, and grades earned.

Of the 730 men who were twenty-five years of age and older in 1940, the 150 most successful and the 150 least successful subjects were identified. They roughly represented the top and bottom twenty percent. Readers were cautioned not to assume that the bottom group was composed almost entirely of failures. Also, the investigators realized the relativeness of their classifications. They stated (Terman, 1947, p. 314), "It will be understood that our classification of the men is cross-sectional and therefore highly tentative. . . . Others who have been relatively unsuccessful may 'find' themselves and move upward. As we shall see later, a few shifts in each direction have occurred since the 1940 classification was made."

In their summary and conclusions of Chapter XXIII, "Factors in the Achievement of Gifted Men," of volume IV of the Genetic Study of Genius, findings appropriate to the present investigation were that childhood records and test scores during the elementary school years showed

that the A's (the most successful group) and the C's (the least successful group) were almost equally successful. Average grades were about the same for the two groups. Achievement tests were only slightly higher for the A group. During secondary school the groups began to show marked differences with the lower grades in the C group. During the college period the divergence between the two groups was most pronounced. Investigators first thought extracurricular activities might explain the lower grades of the C group. However, extracurricular activities were twice as common among the A's as among the C's. This latter finding was similar to the lack of extracurricular participation of present day secondary school dropouts (Hall, 1965), another expression or demonstration of underachievement.

There were no significant differences between the two groups in physical health. Symptoms of nervousness and emotional instability differed little for the two groups in 1922. Both groups showed improvement in this area in the 1928 and the 1940 surveys.

College and occupational records of the two groups showed marked differences. In comparison, 90% of the A's graduated from college and only 37% of the C's graduated. Of the college graduates, over half of the A's and less than 5% of the C's were elected to honorary scholastic societies. About 2% of the C's failed to graduate from high school; all of the A's graduated. The A's were often accelerated in school. This difference between groups tended to increase from the eighth grade to high school graduation. In graduate school 76% of the A's and only 15% of the C's completed one or more years of graduate work.

In employment nearly 70% of the A's were in professional occupations as compared with 9% of the C's. The A's average earned income

in 1940 was more than two and one-half times that of the C's. By 1944 the ratio was 2 to 1. Three times as many C's as A's reported that they drifted into their jobs. Almost the same ratio of C's to A's reported that they would prefer some other work to that which they were doing. One caution to be observed when interpreting educational and occupational records of the subjects in terms of present conditions is that a majority of the gifted subjects completed high school during the severe economic depression following 1929.

One limitation of Terman's retrospective approach to relative success and underachievement in terms of the present investigation, was the possible elimination of some subjects. If an individual had been an underachiever in the secondary school but had become successful in his vocation, he would have been placed in the middle category of Terman's study or possibly in the top group. He did recognize variations within the two groups.

Research Methodology

The tremendous volume of research on underachievement has created confusion in part due to conflicting results among various studies. As stated in Chapter I, the concept of academic underachievement has been used in studies involving individuals at different academic levels, individuals of different levels of ability, individuals of different levels of achievement, and different criteria of ability and of achievement. In an attempt to provide refined statistical techniques for the study of underachievement, Froehlick and Mayo (1963, p. 622) stated:

> There seems to be no particular statistical advantage for either the ratio or the difference score as a measure of underachievement and overachievement. DuBois has shown that both will eliminate the factor of intelligence. Data offered by

> Garcia and Whighham demonstrated this for the difference score. There may be occasions, however, for which an individual under-achievement-overachievement index is not necessary. The researcher interested in under- and overachievement may eliminate the factor of intelligence from any achievement measure in the correlation framework suggested by DuBois. DuBois, Teel, and Patterson have shown that if the variance which is considered extraneous is eliminated from two variables, the correlation of the residuals, which is the partial correlation, will be the same as the correlation between two ratios or difference scores of the type we have been discussing.

The above report seems to have given support to the use of a difference score in studying under- and overachievement. Inferred is the discrepancy between predicted and actual achievement.

As constructive criticism of a majority of investigations into underachievement, Peterson (1963) stated that four criteria must be adequately defined and identified to overcome the weaknesses in research studies. The four criteria were: a) universe to be sampled, b) measure of aptitude, c) measure of achievement, and d) measure of discrepancy. If the four are adequately defined in the study, generalizations from the results and comparisons with other studies can be made. Conflicting results between studies often can be traced to different criterion measures.

Since underachievement represents a discrepancy between predicted and actual achievement, Thorndike (1963, p. 6) listed four sources of error in our predictions—" 1) errors of measurement, 2) criterion heterogeneity, 3) limited scope in predictors, and 4) intervening experiences." He stated that error of measurement occurred in both the predictor measures and the achievement criterion. When the correlation between the predictor and predicted is high, the individual differences in size of the discrepancy may be largely due to chance.

It is crucial that the criterion measure be substantially the same measure for all the cases in an investigation. Thorndike pointed out that when data are combined from different schools, different programs or even different teachers, heterogeneity is more apt to be introduced into the criterion. He suggested that investigations be carried on within a population for which a given score on the criterion variable has uniform meaning or for which the criterion scores are adjusted so they do have a uniform meaning.

In the proposed investigation, the criterion for underachievement and highachievement will be the equivalent of a grade point average for the subject's four years of earned high school graduation credits. Since all subjects were students of the Tulsa Public Schools, a uniform grading system was used for the four years. After graduation the problem of criterion heterogeneity would become more serious. Students would attend colleges throughout the United States majoring in various fields. Therefore, the criterion of success in post-high school activities was apt to be influenced by this source of error.

Thorndike also pointed out that stable relatively unmodifiable factors may cause errors in prediction. Factors such as sex, race, socio-economic status, and family background will influence the accuracy of prediction of achievement. These are factors which the school cannot modify.

Next, Thorndike pointed out the influence on the criterion of achievement which can occur from the manipulation and modification of personal and educational factors. It is in this area which experimentation has been done in an attempt to reduce underachievement in gifted individuals. The investigator must be aware of the possibility of any systematic bias favoring one group over another.

In the monograph (Thorndike) a research design was presented which seemed most appropriate to the proposed investigation. This was his proposal of "concurrent comparison of contrasting groups." The major advantage of using contrasting groups is that the method can provide a more sensitive test of the existence of a relationship per case tested than does a correlational analysis of a complete group. By using extremes, differences should have an opportunity to be displayed.

Specifically in the area of research on underachievement of gifted individuals, certain needs for research have been identified. Gallagher (1964, p. 8) stated, "A number of research designs seem to have outlived their usefulness or at least to need drastic revision in methodology and theory. . . . To a large extent questionable assumptions underlie some definitions of underachievement. . . . A careful longitudinal followup might greatly increase our knowledge of chronic underachievement." He further stated that the stress placed on the study of developmental process has necessitated longitudinal research. He recognized the need of long-term support to undertake such studies.

Miller (1961) and Fliegler and Bish (1959) also supported the need for longitudinal research into underachievement. One investigator (Miller, p. 83) raised the question of "what happens to underachievers after they leave school?" He listed this problem among the areas in which research needs to be expanded. Longitudinal studies could provide this information. A longitudinal study similar to Terman's was suggested by Fliegler and Bish (1959, p. 438). The need has been established for longitudinal studies to validate many of the inferences based on cross-sectional studies about chronic underachievement.

A longitudinal study would be a form of descriptive research. Van Dalen (1962, p. 184) gave the following summary statements about descriptive research:

> Before much progress can be made in solving problems, men must possess accurate descriptions of the phenomena with which they work. . . . To solve problems. . . . descriptive researchers ask these initial questions: What exists—what is the present status of these phenomena? Determining the nature of prevailing conditions, practices, and attitudes—seeking accurate descriptions of activities, objects, processes, and persons—is their objective. They depict current status and sometimes identify relationships that exist among phenomena or trends that appear to be developing.

He states that the longitudinal method is generally considered more satisfactory than the cross-sectional technique in studying the development of individuals. However, the cross-sectional technique is more commonly used because of its being less time consuming and less expensive. Sampling problems occur in both techniques. In the cross-sectional technique subjects chosen to represent the various age levels may not be comparable. Longitudinal studies usually have fewer subjects so that data do not experience the corrective influence of many samples. Also, areas with low mobility are usually selected for longitudinal work; consequently, the low mobility is apt to introduce a bias.

Other weaknesses result from the use of longitudinal studies. The researcher usually cannot make revisions in his techniques as the study progresses without disrupting the continuity of procedures. Studies usually consist of a relatively small number of subjects from one locality. Range of abilities of a group or population are demonstrated in cross-sectional better than in longitudinal studies. One of the major problems in longitudinal studies is obtaining complete data for all subjects over the years of the project because some move or

lose interest in participating. Another weakness of descriptive research is that it is often temporarily localized; therefore, it does not possess great predictive power.

CHAPTER III

STATEMENT OF THE PROBLEM

The purpose of this study was to examine the activities of a group of gifted high school graduates classified as underachievers for an interval of five years. Results of this kind of investigation should provide insight into the continuation or absence of underachievement beyond one educational level. Cross-sectional studies have illustrated the presence of underachievement at all levels of formal education. Continuation of underachievement from one educational level to another has been inferred from the cross-sectional studies. Need has been established for longitudinal studies to substantiate or refute the inference.

This investigator conducted a study in the spring of 1959 in which temperament factors of academically talented underachieving and highachieving high school seniors were studied (Angelino and Hall). Curious about their activities following graduation, an attempt was made to contact the graduates the next year. Preparation for the follow-up had not been made the year before. The project was unsuccessful. Families had left the city; subjects had left the city for college or work; and many subjects who were located did not respond to the letter.

The problems in conducting a longitudinal study had to be given serious consideration. Studies involving subjects housed in one physical

space, such as a high school, could be conducted without too much difficulty. The major problem would be the loss of subjects due to families leaving the school district. Investigations of high school students would have to be limited to three years, the length of time a typical student would be in the school. When a proposed project would extend beyond high school, the loss of subjects would become a serious problem for longitudinal studies. Subjects would leave the city and would become less interested in the project in subsequent years. Also, the costs and time in maintaining contact with the subjects would tend to limit the size of projects.

In the fall of 1959 the Tulsa Public Schools considered a possible five year follow-up study of all the graduates of the Class of 1960. There were five public high schools which would have graduating seniors. Two new high schools had begun operation but neither school had a senior class during the 1959-60 school year. This proposed project offered an opportunity to conduct a longitudinal study of gifted underachievers beyond the limits of the public school environment. The next step was to devise an appropriate and adequate research design to be undertaken as a supplement of the total class project.

Thorndike and Van Dalen among others have stressed the necessity of appropriate research designs to investigate adequately the problems. Misuse of the concepts of "overachievement" and "underachievement" created much of the confusion in conflicting results among various research projects incorporating use of the projects. Thorndike (1963, p. 6) identified four sources of error in predictions of achievement since the concept of "underachievement" represented the discrepancy

between predicted and actual achievement. The four sources of error were: errors of measurement, criterion heterogeneity, limited scope in predictors, and intervening experiences.

One of the research designs presented by Thorndike which could be applicable to the proposed investigation was the "contrasting groups" design. By identifying a group of subjects who were not underachievers and who met the other criteria of the study, comparison of post high school activities of the two groups would enhance the interpretation of the findings. Observing the underachievers alone would provide limited information because of the absence of a basis for assessing whether or not the activities of the group were typical of gifted students in general.

Peterson (1963, p. 379) noted four criteria in underachievement research to which special attention should be given. These were universe to be sampled, measure of aptitude, measure of achievement, and measure of discrepancy. His criticism of underachievement research combined with Thorndike's constructive criticism which could be incorporated into a research design should produce a better study in underachievement. How the criticisms for research improvement could be incorporated into a longitudinal study would have to be examined.

The basic problem of this study was to determine whether or not underachievement of gifted high school students continued into college and employment. A longitudinal study was designed to follow the activities of a group of gifted high school underachievers for an interval of five years. Consequently, the investigation was a form of descriptive research intended to provide descriptions of what existed at periodic intervals for five years.

Since the concept of "underachievement" is considered to be a discrepancy between predicted and actual achievement, a contrast group of highachievers was identified for a comparison of activities beyond high school. The highachiever group would represent little or no discrepancy between predicted and actual achievement as measured by the achievement criterion. Comparisons between the two groups should give indications of the presence or absence of underachievement in post-high school activities.

In addition to a thorough description of the activities of the under- and highachieving groups, the following null hypotheses were tested to assess the presence or absence of underachievement beyond high school:

> Ho_1: There is no significant difference between the number of gifted underachievers and the number of gifted highachievers who enroll in college.
>
> Ho_2: There is no significant difference between the number of gifted underachievers and the number of gifted highachievers who complete a college degree.
>
> Ho_3: There is no significant difference between the number of gifted underachievers and the number of gifted highachievers who drop out of college.
>
> Ho_4: There is no significant difference the madian fifth year incomes of the employed subjects of the gifted underachievers and the gifted highachievers.

The criterion for giftedness was the top ten percent of the population based on national norms. Two measures of scholastic aptitude were used to identify the gifted subjects. One was the I.Q. score of the Otis Quick Scoring Test of Mental Ability (Otis). All subjects had to have an I.Q. of 120 and above on the Otis. The second measure was the composite score of the Iowa Tests of Educational Development (I.T.E.D.). The I.T.E.D. manual for teachers (Science Research Associates, 1953, p. 58)

states, "With any particular school the composite score does serve quite well one of the uses to which scores on general intelligence tests are usually put. This use is as measures of general scholastic aptitude." In addition to the I.Q. score of 120 and above, all subjects had to have an I.T.E.D. composite score at the 90th percentile and above.

The criterion for achievement was the equivalent of grade point average (GPA). In 1960 the Tulsa Public Schools were not using the "A," "B," "C," "D," and "F" system of grading. The system in use had five levels which in decreasing order were "E," "G," "M," "L," and "U." The highest grade was "E" and the lowest, "U," was an unsatisfactory or failing grade. A grade given by a teacher to a student in a subject was to be based on his ability. Because of the nature of the grading system, it was judged statistically unsound to compute a GPA for each year. Instead, research personnel determined which letter grade best represented the student's grades in all subjects for a year and placed that letter on the copy of Form B (see Appendix A) for each of the years in junior and senior high school. Plus and minus signs were not used in the grading system.

Credits for high school graduation were earned in the ninth grade of junior high school and in the tenth through twelfth grades of senior high school. Consequently, the equivalent GPA's for the four years were used. To be classified as a highachiever, the subject had to have an "E" recorded for each of the four years. To be classified as an underachiever the subject had to have the equivalent of two "G's" and two "M's" or less for the four years. To aid in the selection process points were assigned to the year grades with an "E" being four points and decreasing to a "U" being zero. On the point system the underachiever had

a GPA of 2.5 or less for the four years. One addition to the criterion for underachievement was that no subject could receive an "E" for any of the four years. The discrepancy in prediction between the two groups was at least one letter grade.

With the possible loss of subjects in a five year project and with the design being a descriptive study, all subjects who could be identified as gifted underachievers and gifted highachievers would be used. No attempt would be made to equate groups. If some type of experimental treatment would have been planned, equated groups by statistical or selection procedures would be essential. Equating groups would be difficult to accomplish with subjects who were scoring at the upper limits of a distribution based on group tests.

Certain assumptions were made in order to conduct the study. Included were: The Otis I.Q. and the I.T.E.D. composite scores are valid measures of scholastic aptitude. Students who score in the top ten percent on national norms of measures of scholastic aptitude have the ability to succeed in college. Gifted students who do not attend college represent a waste of potential talent. Grade point average is a valid measure of academic achievement. Grade point average reflects the relative success of a student in school. A subject's relative success in employment as indicated by job satisfaction, job stability, and salary is an indication of his achievement level in the area of work.

Using the retrospective approach the investigation was actually a nine year study. The investigation followed the subjects from junior high school, through senior high school, through college or employment, and into post-graduate school or employment. The subjects had exhibited either underachievement or highachievement for a four year period prior

to high school graduation. Examining subjects for a nine year period should give insight into the problem of determining whether or not underachievement is a continuing phenomenon.

Identifying subjects from the list of graduating seniors may have eliminated a few gifted underachievers at the high school level as possible subjects. Based on a cross-sectional school holding power study conducted in the Tulsa schools during the 1963-64 school year, Hall (1964) found that a few of the students who dropped out of school scored in the top ten percent on scholastic aptitude tests and failed more than one subject during the year they quit school. The same condition probably existed in the Class of 1960.

One major problem in this study was a criticism raised by Thorndike on "homogeneity of criterion." Within the public school environment the criterion of grade point average would seem to be satisfactory. As students entered various institutions of higher learning and pursued various college programs, criterion assessment would become more difficult. Those subjects who entered employment rather than entering or continuing in college would pose an even more difficult problem. To help minimize the problem, achievement was considered in terms of relative success. For example, a highachiever would be considered a highly successful student in high school with his four years of "E" grades. The underachiever would be considered a less successful student with his equivalent GPA of 2.5 or less. At the college level a person who did not complete a regular bachelor's degree program in four years would be considered less successful and would be an underachiever when compared with the person who completed the program in four or less years. Indices of job satisfaction, job stability, and salary would be used to evaluate success in employment.

Procedures which were used and selection of subjects will be discussed in the next chapter. Also, treatment of the data will be discussed.

CHAPTER IV

DESIGN AND PROCEDURE

In May, 1960, the research department of the Tulsa Public Schools initiated a five year follow-up study of the spring graduates from the five public high schools. The follow-up project was designed as a fact finding study. Purposes included: a) a description of the activities of the graduates, b) obtaining facts about the quality of learning by graduates, and c) determining strengths and weaknesses in subject areas (Lewis, 1964). Project director for the planning stage and first year was Dr. A. Hugh Livingston; director for the second through fourth years was Roy J. Lewis; and, director for the fifth year was Richard Hall. Since the present investigation was done in cooperation with the Tulsa Public Schools' five-year project, a description of the overall procedures will be given.

Procedure

Realizing the difficulties in conducting longitudinal studies, considerable planning was devoted to the approach to be used in informing and enlisting the support of the high school seniors in the project. During the second semester high school seniors usually exhibit a high degree of school spirit through their senior activities and graduation procedures. Therefore, the decision was made to pursue the project as if

it were an individual project in each of the five high schools. Another factor considered important was that seniors often express considerable sentimentality upon the thought of being separated from their classmates following high school graduation. As an enticement to respond to proposed questionnaires, students who responded to the questionnaire were promised a mailing list of their fellow graduates.

During the last month of school senior class forums were held in each of the high schools. Students were informed of the purposes for conducting the study and were told how the study was to be conducted. Each student was asked to complete a card (see Appendix A, Form A) giving his name, address, telephone number, and the same information for five local persons who would probably know of his activities for the next five years. In addition, he was asked to indicate where he would probably be the following September. The students were informed that a postcard questionnaire (see Appendix A, Form C) would be mailed to each student in the fall for the ensuing four years. They were informed that for students who did not respond, a committee member from his high school or a person from the research department would contact one of the five persons whom he listed to attempt to secure information requested on the postcard questionnaire.

Students were also told that at the end of the fifth year a more detailed questionnaire would be mailed to them. Questions on types of jobs, present position, salary, and higher education would be included. He would be asked to evaluate certain aspects of his high school curriculum.

Public school information from each student's cummulative record was entered on a special data card (see Appendix A, Form B) by research

department personnel. Of particular interest to the present study were the I.Q. scores, I.T.E.D. scores, and grades for each year. Information for grades seven through twelve was recorded on the copy of Form B. Space was provided for recording the results of the four postcard questionnaires.

Since keeping in contact with a group of subjects for an interval of five years is one of the problems thwarting longitudinal research, consideration was given to the problem. As mentioned earlier Form A and Form D, an address list of the graduates, were planned to aid in maintaining contact with the graduates. If a student did not return his questionnaire, research department personnel would call his home telephone number listed on the Search Data card (Form A) to obtain the necessary information. When information was not obtained by using the home number, other persons listed on the Form A were contacted. For persons listed on the card who lived outside of Tulsa, letters with enclosed postcard questionnaires were mailed to them. In some instances none of the telephone numbers on a Form A were in service; therefore, personnel from the research department went to the addresses given on the card in an attempt to obtain leads from the neighborhood as to the whereabouts of the subject or reference person.

Upon return of the first year questionnaires, folders were prepared for each graduate in which the completed questionnaire and Form A were placed. Also, correspondence and other information which might aid in locating students for ensuing questionnaires were placed in the folder. The graduates reported their current addresses and activities which provided new mailing addresses for the next questionnaire on those graduates who had moved.

Another technique for locating graduates was to place the names

of graduates for whom it was impossible to secure the information at the end of the address list mailed to each student. Anyone who knew of their activities was asked to contact the committee member in the high school.

Subjects

In the spring of 1960 there were 2788 seniors who graduated from the public high schools in Tulsa. Of this group 420 had Otis I.Q.'s of 120 and above. The second criterion for academic giftedness, an I.T.E.D. composite score at the 90th percentile and above, reduced the number to 374. One subject was killed in an auto accident during the second year of the study; therefore, he was removed from the study which reduced the number of 373. From this group a total of 96 subjects had an "E" recorded for their grades earned in all four years of high school credit to form the group of highachievers. Of the remaining 277 subjects 65 had the equivalent of a four year grade point average of 2.5 and below to form the group of underachievers. Since this investigation was a descriptive study, all subjects who met the criteria for gifted underachievers and high-achievers as outlined in Chapter III were used. There remained 212 gifted students who fell between the two contrasting groups who were not investigated in this study.

Sex distribution among the two groups was consistent with the findings of most studies as summarized by Impellizzeri (Miller, p. 11). Table 1 shows the sex distribution of all graduates of the Class of 1960, of the highachievers, and of the underachievers. In the underachiever group males outnumbered females about five to one. In the highachiever group females outnumbered the males about six to four. Of the total Class of 1960 females slightly outnumbered the males.

TABLE I

SEX DISTRIBUTION OF GRADUATES

Group	Males	Females	Total
Total Class	1361	1427	2788
Underachievers	54	11	65
Highachievers	39	57	96

Although both groups were in the top ten percent based on the criteria tests' national norms, the groups differed in ability. To show this difference medians were computed for I.Q.'s and I.T.E.D. composite percentile scores. The median was selected as the measure of central tendency because the distributions were skewed. Only the upper end of a normal distribution was being used. The medians for both groups are shown in Table 2. It is apparent that as a group the highachievers were superior in ability to the underachievers as measured by the Otis I.Q. and the I.T.E.D. composite scores. Six of the highachievers had I.Q. scores greater than the highest I.Q. in the underachiever group which was 137.

TABLE 2

I.Q. AND I.T.E.D. COMPOSITE MEDIANS AND RANGES

Group	I.Q.	Range	I.T.E.D.	Range
Underachievers	122	120-137	95%	90%-99+%
Highachievers	129	120-144	99%	90%-99+%

The two groups of subjects differed in number, sex distribution and ability. Since this investigation was a descriptive study with the purpose of following the subjects' activities for a five year interval, the need for equated groups was not present. Van Dalen (1962) pointed out the weakness in many longitudinal studies of using a relatively small number of subjects. If one group was to receive some type of experimental treatment, the groups would need to be equated through subject selection or statistical treatment to measure or assess adequately the effects of the experimental treatment. Van Dalen noted the need for starting with as large groups as was economically feasible because of the probable loss of subjects before the termination of the study.

All of the subjects identified as either gifted underachievers or highachievers were Caucasians. The research design was not planned to eliminate non-white students. The procedures used in selecting subjects probably reflects the weakness in most standardized tests in not adequately measuring students from different cultural or ethnic backgrounds. For example, many Negro students from bi-racial and all Negro high schools in Tulsa have been most successful in their college endeavors. Tulsa's Negro graduates have been accepted by numerous well known out-of-state universities as well as state universities for honor programs and have achieved recognition for their work. Yet, none was identified by the selection procedures in this study.

Treatment Of The Data

A purpose of a descriptive study is to describe as they occur the events which are isolated for an investigation. Therefore, the activities of the subjects were reported on a yearly basis for the five

year interval of the project. Responses to the questionnaires were compiled and the results were presented in tabular form. In addition, data were reported separately for the contrasting groups of underachievers and highachievers. Results of the entire Class of 1960 graduates in Tulsa were reported to aid in the comparison of contrasting groups and in the understanding of the activities in which the graduates were engaged.

Chi square was used to test the significance of each of the null hypotheses. The .01 level of significance was necessary for a hypothesis to be rejected.

Individual cases also were reported. Group data did not reflect the individual differences which existed within a group over the five year interval. The data could be misleading without including the variations within the groups.

CHAPTER V

RESULTS

Questionnaires were mailed to graduates during the fall of the year for the first four years of the investigation. The fifth year questionnaire was mailed during the winter. Data were compiled each year upon the termination of efforts to locate and secure information about the non-respondents to the questionnaire. Therefore, results of the major activities of the graduates were reported on a yearly basis. Individual cases were included to add to the information on groups to show within group variation.

First Year

During the first year following high school graduation there were 83.1% of the underachiever group and 95.9% of the highachiever group enrolled in college. In comparison 50.5% of the total Class of 1960 were enrolled in college. As compared to the total class a higher percentage of both underachievers and highachievers were attending college the first year. Using I.Q. and a measure of scholastic aptitude as indices of college ability, one would expect a higher percentage of the gifted students to be enrolled in college than one would expect from graduates in general.

Although the number of females in the underachiever group was

small, Table 4 shows that a smaller percentage of the females than the males enrolled in college. Three (5.6%) of the males entered military service; four (7.4%) were employed; and the remaining forty-seven (87.0%) were in college. For the females seven (63.6%) were in college, and the remaining four (36.4%) were employed. As a group fifty-four (83.1%) of the underachievers were in college; eight (12.3%) were employed; and three (4.6%) were in military service.

In Table 5 is similar information for the highachiever group. An almost equal proportion of males and females were in college, 97.4% of the males and 94.7% of the females. By activities thrity-eight (97.4%) of the males were in college and the remaining male (2.6%) was in military service. The table shows that fifty-four (94.7%) of the females were in college; one (1.8%) was in a special school; and the remaining two (3.5%) were employed. For both sexes combined ninety-two (95.9%) were in college; one (1.0%) was in a special school; two (2.1%) were employed; and one (1.0%) was in military service.

Activities of all 1960 graduates as shown in Table 3 reveal a distribution which differes from the two sub-groups. A total of 50.5% (1408) of the graduates enrolled in college. The next largest group was the 23.2% (648) classified as employed. The distribution was almost equal among the categories of special school, military service, and housewives. Although small for most follow-up studies, the 8.4% (235) not reached during the first year was the highest for the four years of postcard questionnaires. The percentages of less than 1% the following three years can be attributed to the use of Form D and the refinement of search techniques by the research department staff. Graduates

wanted to receive the mailing lists and graduates provided information about the persons whose names were placed at the end of the copy of Form D under the heading of non-respondents (see Appendix A, Form D).

TABLE 3

FIRST YEAR ACTIVITIES OF ALL GRADUATES

	Males		Females		Total	
Activity	No.	%	No.	%	No.	%
In college	762	56.0	646	45.2	1408	50.5
In special school	---	---	---	---	174	6.3
Employed	281	20.6	367	25.7	648	23.2
Unemployed	---	---	---	---	---	---
Military service	179	13.2	---	---	179	6.4
Housewives	---	---	143	10.0	144	5.2
Other	---	---	---	---	---	---
Not reached	---	---	---	---	235	8.4
Deceased	---	---	---	---	---	---

TABLE 4

FIRST YEAR ACTIVITIES OF GIFTED UNDERACHIEVERS

	Males		Females		Total	
Activity	No.	%	No.	%	No.	%
In college	47	87.0	7	63.6	54	83.1
In special school	---	---	---	---	---	---
Employed	4	7.4	4	36.4	8	12.3
Unemployed	---	---	---	---	---	---
Military service	3	5.6	---	---	3	4.6
Housewives	---	---	---	---	---	---
Not reached	---	---	---	---	---	---

TABLE 5

FIRST YEAR ACTIVITIES OF GIFTED HIGHACHIEVERS

Activity	Males		Females		Total	
	No.	%	No.	%	No.	%
In college	38	97.4	54	94.7	92	95.9
In special school	---	---	1	1.8	1	1.0
Employed	---	---	2	2.1	2	2.1
Unemployed	---	---	---	---	---	---
Military service	1	2.6	---	---	1	1.0
Housewives	---	---	---	---	---	---
Not reached	---	---	---	---	---	---

Second Year

By the second year the number of underachiever males in college was reduced by five for a total of forty-two (77.8%). The other activity categories as shown in Table 7 changed to six (11.1%) males employed, five (9.3%) in military service and one (1.8%) unemployed. There were seven (63.6%) females from the underachiever group in college, the same as the first year. Two (18.2%) females were employed; one (9.1%) was a full-time housewife; and the remaining one (9.1%) was unemployed. The total underachiever group revealed that forty-nine (75.4%) were in college, that eight (12.3%) were employed, that five (7.7%) were in military service, that one (1.5%) was a housewife, and that two (3.1%) were unemployed.

The highachiever group exhibited somewhat similar changes as shown in Table 8. The distribution among categories for males remained the same as the first year. However, the number of females in college was reduced by five to forty-nine (86.0%). The remaining eight (14.0%) females were employed. The second year total distribution for high

TABLE 6

SECOND YEAR ACTIVITIES OF ALL GRADUATES

Activity	Males		Females		Total	
	No.	%	No.	%	No.	%
In college	690	50.7	520	36.4	1210	43.4
In special school	22	1.6	70	4.9	92	3.3
Employed	347	25.6	503	35.2	850	30.5
Unemployed	28	2.1	35	2.5	63	2.3
Military service	268	19.7	8	0.6	276	9.9
Housewives	---	---	280	19.6	280	10.0
Other	2	0.1	1	0.1	3	0.1
Not reached	2	0.1	7	0.5	9	0.3
Deceased	2	0.1	3	0.2	5	0.2

TABLE 7

SECOND YEAR ACTIVITIES OF GIFTED UNDERACHIEVERS

Activity	Males		Females		Total	
	No.	%	No.	%	No.	%
In college	42	77.8	7	63.6	49	75.4
In special school	---	---	---	---	---	---
Employed	6	11.1	2	18.2	8	12.3
Unemployed	1	1.8	1	9.1	2	3.1
Military service	5	9.3	---	---	5	7.7
Housewives	---	---	1	9.1	1	1.5
Not reached	---	---	---	---	---	---

TABLE 8

SECOND YEAR ACTIVITIES OF GIFTED HIGHACHIEVERS

Activity	Males		Females		Total	
	No.	%	No.	%	No.	%
In college	38	97.4	49	86.0	87	90.6
In special school	---	---	---	---	---	---
Employed	---	---	8	14.0	8	8.4
Unemployed	---	---	---	---	---	---
Military service	1	2.6	---	---	1	1.0
Housewives	---	---	---	---	---	---
Not reached	---	---	---	---	---	---

achievers showed eighty-seven (90.6%) in college, eight (8.4%) employed, and one (1.0%) in military service.

For all graduates the precent in college dropped from 50.5% (1408) the first year to 43.4% (1210) the second year. The percent employed increased from 23.2% (648) the first year to 30.5% (850) the second year. Gains were noted in the categories of unemployed, military service, and housewives. It is possible that part of the increase in categories could have been attributed to the 8.4% (235) not reached the first year. For the second year this category had dropped to 0.3% (9).

Third Year

During the third year a noticable change in activities for the underachievers had occurred. The number in college had dropped to forty (61.5%) as compared to 54 (83.1%) the first year. As Table 10 shows the increase was being absorbed in the categories of employed and housewives. There were fourteen (25.9%) males and four (36.4%) females employed the third year. Three (27.2%) of the females had become full-time housewives to account for 4.6% of the total group of underachievers.

The highachiever group was remaining more stable as shown in Table 11. One male had dropped out of college and the same number of females were in college the third year as were the second year. Therefore, a total of eighty-six (89.6%) of the highachiever group were in college the third year. Two of the females had become full time housewives to account for the only other change from the second year activties of the highachievers.

For all graduates the percentage of students in college continued to decrease. Table 9 shows that 35.7% (997) of all graduates were in

TABLE 9

THIRD YEAR ACTIVITIES OF ALL GRADUATES

Activity	Males		Females		Total	
	No.	%	No.	%	No.	%
In college	581	42.7	416	29.2	997	35.7
In special school	30	2.2	47	3.3	77	2.8
Employed	436	32.0	543	38.0	979	35.1
Unemployed	24	1.7	28	2.0	52	1.9
Military service	280	20.6	8	0.6	288	10.3
Housewives	---	---	376	26.3	376	13.5
Other	1	0.1	---	---	1	0.1
Not reached	4	0.3	5	0.3	9	0.3
Deceased	5	0.4	4	0.3	9	0.3

TABLE 10

THIRD YEAR ACTIVITIES OF GIFTED UNDERACHIEVERS

Activity	Males		Females		Total	
	No.	%	No.	%	No.	%
In college	36	66.7	4	36.4	40	61.5
In special school	---	---	---	---	---	---
Employed	14	25.9	4	36.4	18	27.7
Unemployed	---	---	---	---	---	---
Military service	4	7.4	---	---	4	6.2
Housewives	---	---	3	27.2	3	4.6
Not reached	---	---	---	---	---	---

TABLE 11

THIRD YEAR ACTIVITIES OF GIFTED HIGHACHIEVERS

Activity	Males		Females		Total	
	No.	%	No.	%	No.	%
In college	37	94.8	49	86.0	86	89.6
In special school	---	---	---	---	---	---
Employed	1	2.6	6	10.5	7	7.3
Unemployed	---	---	---	---	---	---
Military service	1	2.6	---	---	1	1.0
Housewives	---	---	2	3.5	2	2.1
Not reached	---	---	---	---	---	---

college during the third year. This reduced number in college was being assimilated by the categories of employed and housewives. Both males and females were able to secure jobs by the time the third year questtionnaire was received. Almost the same percentage of graduates were in the two categories of in college and employed, 35.7% and 35.1% respectively. In addition, nine (0.3%) of the graduates were deceased.

Fourth Year

The downward trend in college enrollment among the underachiever group was continuing. Table 13 shows that thirty-two (59.3%) of the males and three (27.2%) of the females for a total of thirty-five (53.8%) of the underachiever group were in college. Consequently, increases occurred in the categories of employed, military service, and housewives. Several of the females in both groups were not married; however, they were not classified as housewives if they were either full-time students or full-time employed. It should be noted that none of the underachiever group was unemployed during the third and fourth years.

For the highachiever group the number in college took the biggest drop the fourth year, down to eighty (83.3%). The number alone is misleading for two of the females completed a bachelors degree program in less than four years. Both of the ladies were public school teachers during the fourth year. The other major change was in the housewives category which increased to eight (14.0%) graduates as compared to two the third year. Two of the six increase were in the employed category the previous year; four were in college the previous year. However, two of the last four females did complete their degrees by January 31,

TABLE 12

FOURTH YEAR ACTIVITIES OF ALL GRADUATES

Activity	Males		Females		Total	
	No.	%	No.	%	No.	%
In college	554	40.7	338	23.7	892	32.0
In special school	25	1.8	29	2.0	54	1.9
Employed	454	33.4	508	35.6	962	34.5
Unemployed	22	1.6	15	1.1	37	1.3
Military service	288	21.2	6	0.4	294	10.6
Housewives	---	---	517	36.2	517	18.5
Other	1	0.1	---	---	1	0.1
Not reached	10	0.7	10	0.7	20	0.7
Deceased	7	0.5	4	0.3	11	0.4

TABLE 13

FOURTH YEAR ACTIVITIES OF GIFTED UNDERACHIEVERS

Activity	Males		Females		Total	
	No.	%	No.	%	No.	%
In college	32	59.3	3	27.2	35	53.8
In special school	1	1.8	---	---	1	1.5
Employed	16	29.6	4	36.4	20	30.8
Unemployed	---	---	---	---	---	---
Military service	5	9.3	---	---	5	7.7
Housewives	---	---	4	36.4	4	6.2
Not reached	---	---	---	---	---	---

TABLE 14

FOURTH YEAR ACTIVITIES OF GIFTED HIGHACHIEVERS

Activity	Males		Females		Total	
	No.	%	No.	%	No.	%
In college	38	97.4	42	73.7	80	83.3
In special school	---	---	---	---	---	---
Employed	---	---	7	12.3	7	7.3
Unemployed	---	---	---	---	---	---
Military service	1	2.6	---	---	1	1.0
Housewives	---	---	8	14.0	8	8.4
Not reached	---	---	---	---	---	---

1965. The remaining one female who dropped out of college became employed and she has not completed a degree. Three of the males listed as being in college completed a bachelor's degree the third year. Two were in medical school the fourth year; one was in graduate school.

For the total class the percentage of employed persons had surpassed the percentage of persons in college. The remaining categories approximated the percentages found in the second and third years. However, an increase was found in the percentage of full-time housewives, from 13.5% (376) the third year to 18.5% (517) the fourth year. When sub-groups and total group were compared, both the underachiever group and the highachiever group had higher percentages in college than did the total Class of 1960 graduates.

Fifth Year

Several changes occurred in the fifth year results. As should be expected with four year college programs, the number of persons in college decreased from the fourth year figures. For the underachiever group Table 15 shows there were twenty (37.0%) males and three (27.2%) females for a total of twenty-three (35.4%) persons in college as compared to thirty-five (53.8%) the fourth year. The greatest increase in the underachiever group was in the number employed. The increase was from twenty (30.8%) the fourth year to twenty-eight (43.1%) the fifth year. An unusual change was the three (5.6%) males in the underachiever group who were unemployed. In addition, two (3.8%) males could not be located by May 1, 1965, the first of this investigation.

The highachiever group exhibited an even greater change in distribution among categories than did the underachiever group as is shown

TABLE 15

FIFTH YEAR ACTIVITIES OF GIFTED UNDERACHIEVERS

Activity	Males		Females		Total	
	No.	%	No.	%	No.	%
In college	20	37.0	3	27.2	23	35.4
In special school	---	---	---	---	---	---
Employed	22	40.7	6	54.6	28	43.1
Unemployed	3	5.6	---	---	3	4.6
Military service	7	12.9	---	---	7	10.7
Housewives	---	---	2	18.2	2	3.1
Not reached	2	3.8	---	---	2	3.1

TABLE 16

FIFTH YEAR ACTIVITIES OF GIFTED HIGHACHIEVERS

Activity	Males		Females		Total	
	No.	%	No.	%	No.	%
In college	29	74.3	12	21.1	41	42.7
In special school	---	---	---	---	---	---
Employed	7	17.9	32	56.1	39	40.7
Unemployed	---	---	---	---	---	---
Military service	2	5.2	---	---	2	2.1
Housewives	---	---	13	22.8	13	13.5
Not reached	1	2.6	---	---	1	1.0

in Table 16. Also, this year represented the greatest change of the five years for the highachiever group. The number in college dropped from eighty (83.3%) the fourth year to forty-one (42.7%) the fifth year. The number employed the fourth year was seven (7.3%) as compared to thirty-nine (40.7%) the fifth year. Since bachelor degree programs are typically four year programs, composition of the subjects in college the fifth year for both groups is important. However, this topic will be discussed later in the chapter.

Data on fifth year activities of all graduates of the Class of 1960 had not been received and compiled by May 1, 1965. Search procedures

were still in operation attempting to locate more of the graduates. Therefore, comparisons between the sub-groups and the total class could not be made for the fifth year.

In order to show the trends in activities of the total class and the two sub-groups for the entire five year interval Table 17 was prepared. This table represented a combination and modification of Tables 3 through 16. Illustrated were the decreasing percentages of persons in college each year and the increasing percentages in most of the other categories. The decrease of those in college from the first to the fourth year was 18.5% for all graduates, 29.3% for the underachievers, and 12.6% for the highachievers. On a percentage basis the college dropout rate was highest for the underachievers. Increases in other categories were dependent upon the number leaving college. For the total group the greatest four year increase was the percentage of housewives with an increase of 13.3%. An 18.5% increase in employed persons accounted for the largest gain for the underachiever group. This growth continued through the fifth year. For the highachiever group the greatest increase over four years was the 8.4% increase in the number of housewives. By the fifth year the growth in employed persons replaced housewives for the largest increase.

Figure 1 illustrates the decreasing percentages of underachievers and highachievers in college each successive year. The first year percentages were adjusted to zero to demonstrate the differences between the groups. The greater decrease for the highachievers from the fourth to the fifth year suggests college degree completion. A more uniform decrease is exhibited by the underachievers than by the highachievers. A higher dropout rate is shown for the underachievers during the first four years than for the highachievers.

TABLE 17

FIVE YEAR ACTIVITIES OF ALL GRADUATES, UNDERACHIEVER GROUP, AND HIGHACHIEVER GROUP

GROUP:	First Year				Second Year				Third Year				Fourth Year				Fifth Year			
Activity	M	F	Tot.	%	M	F	Tot.	%	M	F	Tot.	%	M	F	Tot.	%	M	F	Tot.	%
ALL GRADUATES:																				
In college	762	646	1408	50.5	690	520	1210	43.4	581	416	997	35.7	554	338	892	32.0	---	---	---	---
In special school	---	---	174	6.3	22	70	92	3.3	30	47	77	2.8	25	29	54	1.9	---	---	---	---
Employed	281	367	648	23.2	347	503	850	30.5	436	543	979	35.1	454	508	962	34.5	---	---	---	---
Unemployed	---	---	---	---	28	35	63	2.3	24	28	52	1.9	22	15	37	1.3	---	---	---	---
Military service	179	---	179	6.4	268	8	276	9.9	280	8	288	10.3	288	6	294	10.6	---	---	---	---
Housewives	---	144	144	5.2	---	280	280	10.0	---	376	376	13.5	---	517	517	18.5	---	---	---	---
Other	---	---	---	---	2	1	3	0.1	1	---	1	0.1	1	---	1	0.1	---	---	---	---
Not reached	---	---	235	8.4	2	7	9	0.3	4	5	9	0.3	10	10	20	0.7	---	---	---	---
UNDERACHIEVERS:																				
In college	47	7	54	83.1	42	7	49	75.4	36	4	40	61.5	32	3	35	53.8	20	3	23	35.4
In special school	--	--	--	--	--	--	--	--	--	--	--	--	1	--	1	1.8	--	--	--	--
Employed	4	4	8	12.3	6	2	8	12.3	14	4	18	27.7	16	4	20	30.8	22	6	28	43.1
Unemployed	--	--	--	--	1	1	2	3.1	--	--	--	--	--	--	--	--	3	--	3	4.6
Military service	3	--	3	4.6	5	--	5	7.7	4	--	4	6.2	5	--	5	7.7	7	--	7	10.7
Housewives	--	--	--	--	--	1	1	1.5	--	3	3	4.6	--	4	4	6.2	--	2	2	3.1
Not reached	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	--	2	3.1
HIGHACHIEVERS:																				
In college	38	54	92	95.9	38	49	87	90.6	37	49	86	89.6	38	42	80	83.3	29	12	41	42.7
In special school	--	1	1	1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Employed	--	2	2	2.1	--	8	8	8.4	1	6	7	7.3	--	7	7	7.3	7	32	39	40.7
Unemployed	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Military service	1	--	1	1.0	1	--	1	1.0	1	--	1	1.0	1	--	1	1.0	2	--	2	2.1
Housewives	--	--	--	--	--	--	--	--	--	2	2	2.1	--	8	8	8.4	--	13	13	13.5
Not reached	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	1	1.0

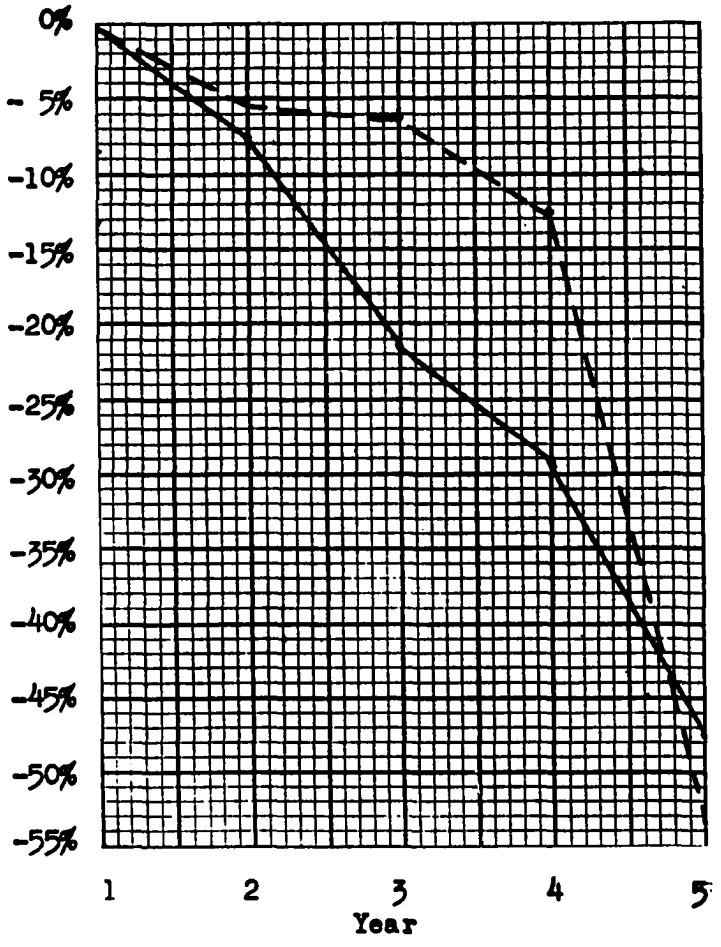

Figure 1. Decreasing Percentages of Highachievers and Underachievers who were in College for Each of the Five Years with the First Year Adjusted to Zero.

Highachievers — — — —

Underachievers ————————

College Data

Of the 1,408 graduates who enrolled in college the first year, 64.1% attended the four nearby college and universities (Lewis, p. 21). In descending order of number in attendance these institutions of higher learning were Oklahoma State University, University of Tulsa, The University of Oklahoma, and Northeastern State College. For those in college the first year 26.2% attended an out-of-state institution of higher learning and 9.7% attended institutions within the State of Oklahoma other than the above mentioned four. Using the four college and universities as separate categories and adding two categories for other institutions within the state and for out-of-state institutions, college enrollment for the first four years of the project is reported in Tables 18 and 19 for the underachievers and highachievers respectively.

TABLE 18

COLLEGES ATTENDED BY UNDERACHIEVERS

Year	First			Second			Third			Fourth		
College	M	F	Tot	M	F	Tot	M	F	Tot	M	F	Tot
O.S.U.	12	3	15	10	2	12	9	2	11	10	2	12
T.U.	13	2	15	12	2	14	15	-	15	11	-	11
O.U.	7	1	8	5	2	7	5	1	6	5	-	5
N.E.S.C.	3	-	3	4	-	4	1	-	1	1	-	1
Within State	3	1	4	3	1	4	1	1	2	-	1	1
Out-of-State	9	-	9	8	-	8	5	-	5	5	-	5
Total	47	7	54	42	7	49	36	4	40	32	3	35

TABLE 19

COLLEGES ATTENDED BY HIGHACHIEVERS

Year	First			Second			Third			Fourth		
College	M	F	Tot	M	F	Tot	M	F	Tot	M	F	Tot
O.S.U.	2	7	9	2	8	10	2	9	11	2	6	8
T.U.	4	8	12	5	6	11	6	6	12	7	6	13
O.U.	2	4	6	3	4	7	3	4	7	4	4	8
N.E.S.C.	-	1	1	-	1	1	-	2	2	-	1	1
Within State	4	5	9	4	2	6	3	3	6	3	3	6
Out-of-State	26	29	55	24	28	52	23	25	48	22	22	44
Total	38	54	92	38	49	87	37	49	86	38	42	80

The most apparent difference between the two groups is the out-of-state college attendance. The underachiever group more closely approximated the findings of the total class. However, over 50% of the highachievers were attending out-of-state institutions of higher learning each of the four years. For the underachiever group the number attending out-of-state colleges was less than 20% each of the four years. (Percentages are based on the number enrolled in college.)

Another difference between the two groups was the number of colleges attended by each student who had enrolled in college for at least one year. Table 20 shows that almost half of the underachievers attended two or more colleges; whereas, less than one-fourth of the highachievers attended more than one college. Five of the underachievers had attended three different colleges and one had attended four different colleges. The figures represent colleges attended through the bachelor's degree. Graduate school attendance was not used in this comparison.

TABLE 20

NUMBER OF COLLEGES ATTENDED BY EACH SUBJECT

Number of Colleges	Underachievers No.	%	Highachievers No.	%
One	34	59.6	71	78.9
Two	17	29.8	18	20.0
Three	5	8.8	1	1.1
Four	1	1.8	-	-
Total	57	100.0	90	100.0

The most important difference on college data between the two groups is the number who completed college degrees. The number of students attending college the fifth year as reported in Tables 15, 16, and 17 is misleading without examining the level at which the students were attending college. Table 21 shows that 87% of the underachievers in college the fifth year were still pursuing a bachelor's degree. In contrast, 83.3% of the highachievers in college the fifth year were enrolled as graduate students. Only six or 16.7% of the latter group were still pursuing a bachelor's degree.

Another important comparison inferred by the fifth year college data in Table 21 is the number completing a college degree program for each group. A total of seventy-six (79.2%) of the highachiever group had completed a bachelor degree program by January 31, 1965. In comparison only twelve (18.5%) of the underachiever group had completed a degree in the same length of time.

TABLE 21

FIFTH YEAR COLLEGE ATTENDANCE

Level	Underachievers M	F	%	Highachievers M	F	%
Graduate School	3	-	13.0	24	11	83.3
Pursuing B. A.	17	3	87.0	5	1	16.7
Total	20	3	100.0	29	12	100.0

TABLE 22

COLLEGE ATTENDANCE OF BOTH GROUPS

Activity	Underachievers M	F	Tot.	Highachievers M	F	Tot.
Degree completed in:						
3 yrs.	-	-	-	3	2	5
3½ yrs.	1	1	2	-	-	-
4 yrs.	6	-	6	29	42	71
4½ yrs.	4	-	4	-	-	-
Total	11	1	12	32	44	76
Still pursuing B.A.:						
Full-time	15	2	17	5	-	5
Part-time	2	1	3	-	1	1
Total	17	3	20	5	1	6
Quit College before degree	19	3	22	1	9	10
Did not attend college	6	4	10	-	3	3
Unknown	1	-	1	1	-	1

Besides the 80% to 20% college degree completion of the high-achievers compared with the underachievers, Table 22 shows that twenty-two (33.8%) of the underachiever group who at one time had enrolled in college had dropped out of college before completion of a degree. Only ten (10.4%) of the highachiever group who at one time had enrolled in college had dropped out of college. This difference becomes more

important with the realization that a higher percentage of the high-achiever group enrolled in college than did the underachiever group. In addition, ten (15.4%) of the underachiever group did not attend college as compared to three (3.1%) of the highachiever group.

On the basis of the data presented in the preceeding tables relating to college attendance, it would seem that as a group gifted high school underachievers tend to be less successful in college than did their counterparts, the highachievers. Therefore, the group identified as under-achievers seemed to continue as underachievers in college. Statistical treatment will be presented later in the chapter.

Equally as important were the individual variations within the two groups in the category of college. Of the underachiever group eight (12.3%) completed a college degree program in four or less years, and two more for a total of ten (15.4%) completed a degree program in four and one-half or less years. As part of this ten, subject #1108 was in an Optometry school; subject #2006 was in Law school; and, subject #1426 was in Medical school. However, all of the three were at the upper limit of the underachievement criterion with an equivalent GPA of 2.5 for their four years of high school. Subject #2216 had completed a Bachelor of Science degree but was unemployed midway through the fifth year. Another student identified as a high school underachiever, #1953, had an equivalent high school GPA of 2.25. He qualified for the N.R.O.T.C. program in college and maintained the grades to remain in the program. He completed a Bachelor of Business Administration degree and entered active duty in the Navy.

Among the highachievers were six subjects who did not complete a college degree program in four and one-half years but were still pursuing

This figure was somewhat misleading for subject #360 had served four years of active military duty to fulfill his obligation and then entered college. The remaining five were exhibiting traits which were characterized as evidence of underachievement at the college level for the underachiever group.

On the positive side for the highachiever group, subjects #163 and #2141 completed a degree program in three years and were accepted into a medical school for their fourth year. Subject #53 also completed a degree in three years and entered graduate school the fourth year. Subjects #1242 and #2259 completed a degree and were public school teachers the fourth year. Among those receiving scholarships for advanced study was subject #664 who was awarded a Fulbright Scholarship to Germany for a year's study.

On the basis of the data presented in the preceeding tables and of the individual records of subjects, it would seem that individuals within both groups tended to reverse their achievement patterns as compared to their high school records.

Employment

With a majority of the subjects from both groups enrolled in college each of the first four years, a small portion of the subjects remained to be distributed among the other six categories of post-high school activities. When the type of work could be determined for each subject categorized as employed, he was placed in one of eight classifications following the guidelines of the Dictionary of Occupational Titles (U. S. Employment Service, 1949). The eight classifications are given in Tables 23 and 24.

Generalizations about underachievers from comparisons of the two groups was questionable because of the pronounced sex differences in the groups and because of the few highachievers who were employed the first four years. A more reasonable approach would be to examine the conditions as they existed for the two groups keeping in mind the biases of sex and numbers.

As reported in Table 24 individuals from the highachiever group were employed only in clerical positions for the first four years. The greatest number for any one year was the eight females employed during the second year. They represented only 8.4% of the highachievers. This group illustrates the problem of evaluating success in employment which Terman (1947) recognized in designing his study. As noted in Chapter II, females would take clerical and sales positions until marriage or to supplement the family income. This was true of the highachiever females who were employed.

In the underachiever group a greater number and an even greater percentage of the group were employed the first four years than were the highachievers. With more males in this group, Table 23 shows a concentration of subjects in the trades. However, the table seems to indicate a trend to higher skill occupations through the five years. Almost one-half of the fifth year employed males were in skilled occupations.

Probably a minimum of an additional five years would be necessary for adequate appraisal of occupational differences between the two groups. With the additional time, most students who were in graduate school would be entering professions. Terman's study suggested the limitations for interpreting occupational data from this investigation.

TABLE 23

TYPES OF EMPLOYMENT OF UNDERACHIEVERS

Job	First			Second			Third			Fourth			Fifth		
Classification	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Professional	-	-	-	-	-	-	-	-	-	-	-	-	2	1	3
Semi-Prof	-	-	-	-	-	-	-	-	-	1	-	1	2	-	2
Clerical	-	3	3	-	2	2	3	2	5	2	3	5	1	3	4
Sales	-	-	-	1	-	1	3	-	3	2	-	2	2	1	3
Service	-	-	-	-	-	-	1	2	3	2	1	3	1	-	1
Skilled	-	-	-	1	-	1	3	-	3	6	-	6	9	-	9
Semi-Skilled	2	-	2	2	-	2	2	-	2	3	-	3	4	-	4
Unskilled	2	1	3	2	-	2	2	-	2	-	-	-	-	-	-
Not given	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2
Total	4	4	8	6	2	8	14	4	18	16	4	20	22	6	28

TABLE 24

TYPES OF EMPLOYMENT OF HIGH ACHIEVERS

Job	First			Second			Third			Fourth			Fifth		
Classification	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Professional	-	-	-	-	-	-	-	-	-	-	-	-	5	20	25
Semi-Prof.	-	-	-	-	-	-	-	-	-	-	-	-	2	6	8
Clerical	-	2	2	-	8	8	1	6	7	-	7	7	-	5	5
Sales	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Skilled	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Semi-Skilled	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unskilled	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not given	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Total	-	2	2	-	8	8	1	6	7	-	7	7	7	32	39

A marked contrast did occur between the two groups the fifth year. With many of the subjects completing college degrees the fourth year and entering employment, a considerable increase occurred in the professional and semi-professional classifications. Since fewer of the underachievers completed a college degree in four years, opportunities for professional positions were not available to as many of the underachievers as were to the highachievers.

TABLE 25

FIFTH YEAR SALARIES OF EMPLOYED SUBJECTS

Range	Underachievers	Highachievers
Under $1,000	-	-
$ 1,000 to $ 2,999	2	1
$ 3,000 to $ 4,999	9	24
$ 5,000 to $ 6,999	9	8
$ 7,000 to $ 8,999	4	2
$ 9,000 to $10,999	-	1
$11,000 and above	-	-

Although Terman (1947) cautioned against using income in rating occupational success, viewing the data on yearly salaries of the two groups for the fifth year proved interesting. Table 25 shows little difference between two groups. The median salary of the underachievers would be higher than the highachievers. Again, generalizations from the data would be inaccurate because of the pronounced sex differences of the two groups of employed subjects. Also, most of the highachiever group were in beginning positions; whereas, many of the underachievers had been employed in their present position for two or more years. With the financial loss of college attendance, the results would definitely favor the underachievers when considering income alone.

Statistical Treatment

Chi square was selected to test the null hypotheses formulated for this study. The 1% level of significance was necessary for a hypothesis to be rejected. A four-cell contingency table was used to compute the chi square for the first three hypotheses. Table 26 provides the data for testing hypothesis one assessing college attendance. The resulting chi square value was 4.732 which was not significant at the .01 level

with one degree of freedom. Therefore, Ho_1: There is no significant difference between the number of underachievers and the number of high-achievers who enroll in college--was accepted. The difference between the two groups of this study is a chance difference.

TABLE 26

COLLEGE ATTENDANCE

Group	Yes	No
Underachievers	55	10
Highachievers	91	5

Table 27 presents the data for testing hypothesis two concerning college degrees received by the subjects. The resulting chi square of 57.4 was significant at the .01 level with one degree of freedom. Hypothesis two was rejected. There was a significant difference between the two groups in the number receiving college degrees. The highachievers were more successful in completing degrees than were the underachievers. As measured by the lack of success in college, underachievement persisted for the high school underachievers as a group.

TABLE 27

NUMBER RECEIVING COLLEGE DEGREES

Group	Yes	No
Underachievers	12	53
Highachievers	76	20

Table 28 presents the data for testing hypothesis three on college dropouts. The resulting chi square value was 19.3 which was significant at the .01 level with one degree of freedom. The hypothesis was rejected. There was a significant difference between the groups in the number of college dropouts. The underachievers had a significantly larger number. This was another indication of the continuation of underachievement.

TABLE 28

NUMBER OF COLLEGE DROPOUTS

Group	Yes	No
Underachievers	22	29
Highachievers	10	81

The fourth hypothesis was formulated to test the significance of fifth year income for the two years. As a result of the findings presented in the preceeding section of this chapter, it seems inappropriate to test the fourth hypothesis. Generalizations from the biased data would probably be inaccurate for both the sample and for the total population.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Underachieving gifted students have been the subject of numerous essays and research studies. Investigators have explored many factors which might be related to a student's academic achievement, e.g. personality, interests, socio-economic conditions, and creativity. Perusal of professional journals of the past one and one-half decades reflects the concern over academic underachievement. The diversity of research on this topic is obvious.

Apparently conflicting results have been reported in different studies to add to the dilemma of understanding underachievement. Much of the problem of conflicting results can be attributed to inconsistencies in definition and research design. The concept of "underachievement" has been used in studies involving individuals at different academic levels, individuals of different levels of ability, individuals of different levels of achievement, and different criteria of ability and of achievement.

Review of the literature has shown an emphasis placed on the long term effects of underachievement. Cross-sectional studies have demonstrated that underachievement exists at all levels of education. From these studies inferences have been made about the continuation of under-

achievement among individuals. Unfortunately, reported longitudinal studies of gifted underachievers for over three years duration were almost nonexistent. The need for properly designed longitudinal studies has been established.

Design problems should not eliminate research in the apparently needed area of longitudinal studies of gifted underachievers. A proposed five-year follow-up study of all the graduates of the Class of 1960 of the public high schools in Tulsa, Oklahoma offered an opportunity for such a longitudinal study. As a supplement to the total follow-up study, a descriptive study with contrasting groups of under- and highachievers was devised with the purpose of describing the activities of each group at periodic intervals over a five year time span. Comparisons between the groups would show any differences which might occur as the subjects entered college or employment. Several hypotheses were presented to test the significance of differences in college and employment activities which might occur between the groups.

Students who scored in the top ten percent based on national norms of two measures of scholastic aptitude were identified as gifted students. The criterion for achievement was the equivalent of grade point average for grades nine through twelve of high school. Those gifted students who had an "E" as the representative grade for each of the four years were identified as gifted highachievers. Those gifted students who had an equivalent grade point average of 2.5 and below for the four years of high school were classified as gifted underachievers. Of the 2788 seniors who were graduated in the spring of 1960, 96 (3.4%) were classified as gifted highachievers and 65 (2.3%) were classified

as gifted underachievers. There were 54 male and 11 female underachievers and there were 39 male and 57 female highachievers. The groups differed in ability with a median I.Q. of 129 for the highachievers and 122 for the underachievers which was seven points.

Subjects were contacted periodically for an interval of five years. Responses by either questionnaire or telephone interview were obtained for all of the subjects for the first four years. Two (3%) of the underachievers and one (1%) of the highachievers could not be located for the fifth year information. Responses were compiled for table presentation so that comparisons could be made between groups and with the results of the total Class of 1960.

Throughout the four years a higher percentage of both underachievers and highachievers attended college than did the total class. In addition, the percentage of highachievers in college was higher each of the five years than was the underachievers. More of the highachievers attended select out-of-state institutions of higher learning than did the underachievers. Over the five year period the underachievers more nearly resembled the college attendance pattern of the total class. Of those still in college the fifth year, the majority of underachievers were attempting to complete a bachelor degree program in contrast to the majority of highachievers who were in graduate school. The highachievers tended to complete a degree program in less time than did the underachievers.

There were significant differences between the groups in the number completing college degree programs in four and one-half years or less. Also, there was a significant difference between the two groups

in the college dropout rate. The underachiever group had a significantly higher number of college dropouts and had significantly fewer individuals completing a college program based on those who had enrolled in college. There was not a significant difference between the groups on the number who enrolled in college over the four years.

Since a large portion of the subjects were in college the fifth year of the project, employment and occupational data was too limited for making sound generalizations. A more pronounced change occurred in the employment category of the highachievers the fifth year than in any other year for both groups. Many highachievers had completed a degree and had entered an occupation.

From the analysis of the data obtained, the following conclusions are presented:

1. Gifted high school underachievers tended to be less successful in college than did gifted highachievers.

2. Over the period of five years, some individuals overcame their high school underachievement pattern while some high school highachievers were not successful in college.

3. Occupational data were inconclusive for assessing underachievement five years following high school graduation.

4. The investigation gave support to the hypothesis of the continuation of underachievement, as far as college is concerned.

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APPENDIX A

FORM A SEARCH DATA CARD

ONE YEAR FOLLOW-UP—CLASS OF 1960 (FRONT)

Name________ Address________

Present Address________ Telephone No.________

Local Persons Who Probably Will Always Know My Address:

Name________ Relation________

Address________ Telephone No.________

Employed By________

Name________ Relation________

Address________ Telephone No.________

Employed By________

Name________ Relation________

Address________ Telephone No.________

Employed By________

Name________ Relation________

Address________ Telephone No.________

Employed By________

Name________ Relation________

Address________ Telephone No.________

Employed By________

According to Present Plans, Next September I Probably Will Be: (BACK)

____In College—Where________

____Employed—Living Where________

____Married—Living Where________

____Attending School other than College (Nursing, Technical School, etc.)—Where________

____In Military Service

____Other________

FORM B STUDENT DATA CARD

TULSA PUBLIC SCHOOLS--FOLLOW-UP STUDY

Name____ Address____ Tel. No.____

Sex____ Race____ Jr. Hi.____ Sr. Hi.____ Age at Grad.____ Yr. Ent. Tulsa Sch.____

Parents Are: Living Together____ Divorced____ Separated____ Father Deceased____ Mother Deceased____

Pupil Lives With: Both Parents____ Mother____ Father____ Step-Father____ Relatives____ Other____

Mother____

Occupation of Father:____ Mother:____

Days Attended, Gr. 7____ 8____ 9____ 10____ 11____ 12____ Ed. Level of Father____ Mother____

Participation in Activities: 7____ 8____ 9____ 10____ 11____ 12____

Offices Held, Honors Won:____

Pupil Employed, Gr. 7____ 8____ 9____ 10____ 11____ 12____

VOCATIONAL PREFERENCE	EDUCATIONAL PLANS	INTERESTS REPORTED	DISCIPLINE RECORD	Stanford Ach. Grade 8	I.T.E.D. Grade 9	I.T.E.D. Grade 11
7____				P.M.____	1____	
8____				W.M.____	2____	
9____				Sp.____	3____	
10____				Lang.____	4____	
11____				A.R.____	5____	
12____				A.C.____	6____	
				A.A.____	7____	
					8____	
					C____	

Otis I.Q., Gr. 7____ Gr. 10____ Am. Psych. Test, Gr. 12: Ling.____ Quant.____ Total____

Grades Earned: Gr. 7____ 8____ 9____ 10____ 11____ 12____ Tot. Credits____

Courses Taken:

Eng 1-2____	Gen.Math ____	Civics ____	Gen.Sci. ____	F. Lan 1-2____	Art 1____	Music 1____
Eng 3-4____	Alg. 1-2____	U.S. Hi. ____	Biology ____	F. Lan 3-4____	Art 2____	Music 2____
Eng 5-6____	Alg. 3-4____	W. Hist. ____	Chem. ____	F. Lan 5-6____	Art 3____	Music 3____
Eng 7-8____	Pl. Geom. ____	A&M Hi. ____	Phys. ____	F. Lan 7-8____	Art 4____	Music 4____
Jrn. 1-2____	Trig. ____	Mod. Hi. ____	Phy-Psyc ____			
Jrn. 3-4____	S. Geom. ____	Com. Hi. ____	Geogr. ____			
Sp. 1-2____	C. Alg. ____	Neg. Hi. ____	Geology ____			
Sp. 3-4____	Adv.Math ____	Ec. Gvt. ____	Adv.Sci. ____			
Sp. 5-6____		Lat. Am. ____				

(FRONT)

Typing 1-2____	B.Mach. 1-2____	Elect. 1-2____	AutoMec 1-2____	*Vocational:*		Hommakg. 9____
Sec. Typ 1-2____	Bookkpg 1-2____	Elect. 3-4____	Woodwk 1-2____	Print. 1____ 2____		Foods 1-2____
Shorthd. 1-2____	B. Arith. ____	Electron 1-2____	Woodwk 3-4____	Mach. Sh 1____ 2____		Foods 3-4____
Shorthd. 3-4____	Cler. Trig. ____	Photog. 1-2____	Woodwk 5-6____	Auto Mec 1____ 2____		Foods 5-6____
Transc. 3-4____	Off.Prac 1-2____	Weld. 1-2____	Drafting 1-2____	Drafting 1____ 2____		Clothing 1-2____
Bus Law 1-2____	Co-op Pr 1-2____	Tailor. 1-2____	Drafting 3-4____	Woodwk. 1____ 2____		Clothing 3-4____
Fil. & Ind. ____		Print. 1-2____	Drafting 5-6____	Tailor 1____ 2____		Clothing 5-6____
		Ind. Art 9____		DE-DO 1____ 2____		Hm.Mgmt. ____

Post High School Activity: If changed, why? If in college, what record?

July 1960-June 1961____

July 1961-June 1962____

July 1962-June 1963____

July 1963-June 1964____

July 1964-June 1965____

Married: Yes____ No____ When?____ Number of Children____ Ages____

Military Service: Yes____ No____ What Branch____ Special Schooling?____

Length of Service____ Rank Achieved____ Discharged____

College: Yes____ No____ How Long____ Degree____ Major Field____

Scholarship, Yes____ No____, Kind and Amount____

Reason for Leaving____

Other post-high school attendance: Yes____ No____ What Kind____

Length of Attendance____ Diploma or Degree____ Specialty____

Full-time Employment: (BACK)

From____ 19____ to____ 19____ Where____ Responsibility____

From____ 19____ to____ 19____ Where____ Responsibility____

From____ 19____ to____ 19____ Where____ Responsibility____

From____ 19____ to____ 19____ Where____ Responsibility____

FORM C POSTCARD QUESTIONNAIRE

(BACK)

(Date)

DEAR 1960 GRADUATE:

This is our (number) attempt to contact you since graduation. We are interested in knowing what you are doing. Will you fill out the other half of this card and return it immediately to us? When your reply arrives we will prepare a list of the addresses and activities of all your fellow graduates and send you a copy. This will help you keep up with the whereabouts of many of your friends.

Your school will greatly appreciate your taking a little time to complete the card (the postage is already paid). We know you will want the list of addresses of other class members. Your response has been excellent for the past (number) years. We shall look forward to hearing from you again this year.

Sincerely,

(Name), *Principal*

(FOLDED)

(NAME) HIGH SCHOOL
FOLLOW-UP STUDY
Box 4715
Tulsa, Oklahoma 74114

STUDENT'S NAME
Street Address
City, State

(NAME) HIGH SCHOOL FOLLOW-UP STUDY

Your Name _____

Your Home Address _____
Street

I Am Now: _____ _____
City *State*

___ In college—where: _____

___ In special school—which one: _____
(Bus. College, Nursing, Technical School, etc.)

___ In Armed Forces—branch: _____

___ Employed—full time—where: _____

Type of work: _____
(EXAMPLE: *Secretary, warehouseman, sales person, grocery checker, machinist, construction worker, etc.*)

___ Housewife

___ Employed—part time—where: _____

___ Seeking employment: _____

___ Other—what? _____

Married? Yes ___ No ___ If yes, how many children do you have? _____

FORM D ADDRESS LIST MAILED TO EACH GRADUATE

(NAME) HIGH SCHOOL
Tulsa, Oklahoma
Date, 1964

Dear 1960 Graduate:

Here is the list of addresses and present whereabouts of your fellow classmates. The list includes all replies to the postcard questionnaire received up to January 10, 1964. At the end of the list you will find the names of persons whom we have not been able to contact. If you know how any of them may be reached, will you please notify Mr. ___ _____ at the high school.

The girls in the list are alphabetized according to their maiden name. The married name will appear first, followed by her maiden name. Jenny Lee Jones, who married John Doe, would appear as follows: Doe (Jones), Jenny Lee. "M" after a person's name indicates that the person is married. If the "M" is followed by a number (as M-1) this tells you the number of children the person has. The address is the home address except where a college or service address was provided by the graduate.

Many changes have been made in the staff since your graduation. We were grieved by the death of our beloved principal, _____ _____, in August, 1962, only four weeks after he transferred to his new school . . . . . vocational machine shop instructor.

Sincerely yours,

(NAME)

Principal

Name and Marital Status	Address	Activity
Acuff, Jo Ann	3130 N. Ash, Tulsa	Working
Wheeler (Adams), Ruth Ann-M-1	4422 W. Harvard, Tulsa	Housewife
Akins, Joe	1108 E. Main, Tulsa	Navy
Albin, Sally	1248 S. Columbia, Tulsa	O.S.U.
Hall (Alexander), Sue-M	203 State, Dallas	Housewife

Etc.

FORM E FIFTH YEAR QUESTIONNAIRE

DEAR 1960 GRADUATE: January 4, 1965 (FRONT)

This is our fifth attempt to contact you since graduation. We are interested in knowing what you are doing. As planned prior to your graduation, a more detailed questionnaire is being mailed to you this fifth and final year. Your individual reply will be confidential. Your careful evaluations will be most helpful in planning curriculum improvements for your alma mater. Will you complete the following questionnaire and return it immediately to us? When your reply arrives we will prepare a list containing only the names and addresses of all your fellow graduates and send you a copy. This will help you keep up with the whereabouts of many of your friends.

Your school will greatly appreciate your taking a little time to complete the questionnaire (a postage paid return envelope is included). We know you will want the list of addresses of other class members. Your response has been excellent for the past four years. We shall look forward to hearing from you again this year.

Sincerely,
(NAME)
Principal

Please print or type information. On multiple-choice items, place an X over the number preceding appropriate response.

A. PERSONAL INFORMATION:

1. Name_____

2. Present address:

_____
Street Number *City* *State* *Zip Code*

3. SEX:
(1) Male
(2) Female

4. HIGH SCHOOL PROGRAM:
(1) Business
(2) College preparatory
(3) General
(4) Vocational or technical

5. PRESENT MARITAL STATUS:
(1) Single
(2) Married
(3) Separated
(4) Divorced
(5) Widowed

B. EMPLOYMENT INFORMATION:

6. WHAT ARE YOU DOING NOW?
(1) Working full time
(2) Working part time
(3) Attending school full time
(4) Attending school part time
(5) Homemaker
(6) In full-time military service
(7) Unemployed and seeking work
(8) Other_____

7. PRESENT YEARLY SALARY:
(1) None; e.g., homemaker, student
(2) Under $1,000
(3) $ 1,000 to $ 2,999
(4) $ 3,000 to $ 4,999
(5) $ 5,000 to $ 6,999
(6) $ 7,000 to $ 8,999
(7) $ 9,000 to $10,999
(8) $11,000 to $14,999
(9) $15,000 and above

8. MY PRESENT JOB REQUIRES:
(1) Not employed; homemaker, student, etc.
(2) No special training
(3) High school diploma
(4) Some college work
(5) Business school
(6) Apprenticeship
(7) Specialist school
(8) College degree
(9) Uncertain

9. PRESENT JOB SATISFACTION:
(1) Does not apply; homemaker, student, unemployed, etc.
(2) I am working on this job only until a different kind of job turns up.
(3) I am working on this job only to add to the family income.
(4) I like this job well enough to stay in it indefinitely.

10. JOB HISTORY: *(Please list from high school graduation to present including active military duty)*
(a) ( ) Does not apply. Since high school I have been homemaker, full-time student, etc.

(b) EMPLOYER	TYPE OF WORK	DATES OF EMPLOYMENT (MO. AND YR.)	CHECK FULL OR PART-TIME
_____	_____	_____to_____	F-P
_____	_____	_____to_____	F-P
_____	_____	_____to_____	F-P
_____	_____	_____to_____	F-P

C. POST HIGH SCHOOL EDUCATION:

11. If you have had any education or training since high school graduation (college or university, technical school, business school, apprenticeship training), please give the following information:
(a) ( ) Does not apply. I have had no additional education or training since high school.

(b) NAME OF SCHOOL(S) OR COLLEGE(S)	COURSE OF SPECIALIZATION OR MAJOR	CHECK FULL OR PART-TIME	DATES OF ATTENDANCE (MO. AND YR.)	DEGREE OR CERTIFICATE RECEIVED
_____	_____	F-P	_____to_____	_____
_____	_____	F-P	_____to_____	_____
_____	_____	F-P	_____to_____	_____

(c) APPRENTICESHIP PROGRAM
Specialization_____ Completed program? Yes____ No____

12. HIGHEST LEVEL OF EDUCATION ATTAINED: (BACK)

(1) High school diploma
(2) Business school
(3) Vocational or technical school
(4) Junior college
(5) Less than 4 years of college
(6) College or university degree
(7) Post graduate college work
(8) Nursing school graduate
(9) Medical-technical school graduate
(10) Other_____

13. If you entered a college or university but did not continue through graduation, please check the most appropriate reason:

(1) Did not attend college
(2) Completed college
(3) Financial
(4) Health
(5) Marriage
(6) Family discouragement
(7) College grades
(8) Suspension
(9) Disinterest
(10) Other_____

D. EVALUATION OF HIGH SCHOOL EDUCATION: *(Check appropriate response)*

HELPFULNESS OF HIGH SCHOOL TEACHERS AND COUNSELORS	VERY HELPFUL	HELPFUL	LITTLE OR NO HELP	DOES NOT APPLY
14. Selecting subjects while in high school				
15. Learning how to obtain a job				
16. Discovering your abilities, interests, and limitations				
HELPFULNESS OF HIGH SCHOOL PREPARATION				
17. Securing gainful employment				
18. Success on present job or in post high school education				
19. Understanding how to budget your money wisely				
20. Writing letters, reports, or notes with accuracy				
21. Reading for enjoyment or information				

HIGH SCHOOL CURRICULUM

(1) Art
(2) Business Education
(3) English
(4) Foreign Language
(5) History/Economics
(6) Homemaking
(7) Industrial Arts
(8) Journalism
(9) Mathematics
(10) Music, Instrumental
(11) Music, Vocal
(12) Physical Education
(13) Science
(14) Speech
(15) Cooperative Education
(16) Distributive Education
(17) Vocational or Technical Education

22. From the above list, my most helpful high school course was from the area_____*(give number).*
23. From the above list, my least helpful high school course was from the area_____*(give number).*
24. If I were to retake my high school program, I would take additional courses from the area_____*(give number)* or ( ) I would follow the same program.
25. If I were to retake my high school program, I would not retake courses from the area_____*(give number)* or ( ) I would follow the same program.

HOW WOULD YOU RATE THE JOB THAT WAS DONE BY YOUR HIGH SCHOOL? *(Circle response)*

26. The philosophy of the Tulsa Public Schools is to provide a program which meets the educational needs of each student.
Rating: Excellent Good Fair Poor No opinion

27. The Tulsa Public Schools strive to develop attitudes and character traits that are fundamental to democratic living such as sensitivity to and respect for the rights of others and accepting the responsibility of citizenship through abiding by the rules of society, being an informed citizen and exercising the right to vote.
Rating: Excellent Good Fair Poor No opinion

28. The Tulsa Public Schools strive to develop basic knowledge about historic, economic, social, and political factors which influence the growth or decline of nations so that individuals may have a better understanding of world conditions and problems.
Rating: Excellent Good Fair Poor No opinion

29. The Tulsa Public Schools strive to develop an awareness of and appreciation for quality and beauty in literature, art, music, and the world about us.
Rating: Excellent Good Fair Poor No opinion

GENERAL STATEMENTS

30. As an alumnus what things did you particularly like about your high school?

31. As an alumnus what things did you particularly dislike about your high school?

32. Do you have suggestions for revision in curriculum?

APPENDIX B

UNDERACHIEVER DATA

						Activities by YEAR					Fifth Year Responses to Selected Items						
ID#	Sc	Sx	IQ	Equi GPA	ITED Comp	1	2	3	4	5	4	5	6	7	9	12	13
46	1	F	123	2.50	95	1	1	1	1	3	2	1	1	4	2	5	3
48	1	M	134	2.50	95	1	1	1	1	1	2	2	3	3	1	5	-
96	1	M	120	2.50	91	1	1	1	3	3	3	2	1	5	3	5	4
159	1	M	120	2.25	96	1	4	3	1	1	2	1	3	1	1	5	-
169	1	M	122	2.25	93	3	3	3	3	3	-	-	-	-	-	-	-
249	1	M	120	1.50	93	1	5	3	3	3	-	-	-	-	-	-	-
324	1	M	121	1.75	93	1	1	5	1	5	2	1	6	4	4	6	2
388	1	M	120	2.25	98	1	1	1	3	3	2	2	1	6	4	5	3
408	1	M	120	2.25	93	1	1	1	3	3	-	-	-	-	-	-	-
462	1	M	125	2.50	95	1	1	1	1	1	2	1	3	1	1	5	-
476	1	M	120	1.75	95	1	1	1	1	3	-	-	1	4	2	6	2
478	1	M	120	2.25	91	1	1	3	3	1	-	-	-	-	-	-	-
506	1	M	123	1.25	90	3	3	3	3	3	3	2	1	5	4	1	1
541	1	M	122	2.25	91	1	1	1	1	3	2	1	3	1	1	7	2
590	1	M	125	1.75	93	5	5	5	5	5	2	1	6	4	2	1	1
615	1	M	122	1.50	95	1	1	1	1	5	2	1	6	3	2	6	2
631	1	F	121	1.75	92	1	1	1	3	1	3	4	3	1	1	5	-
934	1	F	122	2.50	91	1	1	1	1	3	2	1	1	5	4	6	2
949	2	M	124	2.25	91	1	1	1	3	4	2	1	3	1	1	5	-
1035	2	F	127	2.25	95	1	1	3	6	3	2	2	1	5	3	5	3
1051	2	M	129	2.25	95	1	1	3	5	5	2	1	6	3	2	5	7
1071	2	M	120	2.50	91	1	1	1	1	1	3	2	3	1	1	5	-
1080	2	M	122	2.50	98	1	1	1	1	1	-	-	-	-	-	-	-
1083	2	M	124	2.25	96	1	1	1	5	-	-	-	-	-	-	-	-
1108	2	M	120	2.50	95	1	1	1	1	1	2	2	3	1	1	7	2
1122	2	M	121	2.25	91	1	1	1	1	1	2	1	3	1	1	5	-
1131	2	M	120	2.50	91	1	1	1	1	5	2	2	6	4	1	6	2
1145	2	M	122	2.00	95	1	1	1	1	4	-	-	-	-	-	-	-
1149	2	M	126	1.50	99	1	1	1	3	3	-	-	-	-	-	-	-
1215	2	M	122	2.00	96	1	1	1	3	3	2	2	1	6	2	4	7
1294	2	F	130	2.00	99+	3	6	6	6	6	2	2	5	1	1	1	1
1326	2	M	126	1.75	98	5	5	1	1	3	-	-	-	-	-	-	-
1341	2	M	127	2.00	93	1	1	1	1	1	2	1	3	3	3	5	-
1352	2	M	121	2.50	91	3	3	3	3	3	-	-	-	-	-	-	-
1372	2	M	122	1.75	99+	1	1	3	3	3	2	2	2	5	-	5	3
1423	2	M	128	2.25	98	1	1	1	1	1	2	1	3	1	1	5	-
1426	2	M	123	2.50	98	1	1	1	1	1	2	1	3	1	1	7	2
1430	2	M	125	2.00	93	3	1	1	1	3	2	2	1	5	4	5	5
1464	2	M	120	2.25	95	1	1	1	1	-	-	-	-	-	-	-	-
1473	2	M	120	2.50	98	1	1	1	1	1	2	1	3	1	1	5	-
1536	3	M	121	1.75	96	5	5	5	5	3	2	1	1	5	3	2	1

UNDERACHIEVER DATA con't.

						Activities by YEAR					Fifth Year Responses to Selected Items						
ID#	Sc	Sx	IQ	Equi GPA	ITED Comp	1	2	3	4	5	4	5	6	7	9	12	13
1537	3	M	124	2.00	93	1	5	5	5	1	2	2	3	3	4	5	10
1557	3	M	120	2.50	90	1	1	1	1	1	2	2	3	1	1	5	-
1567	3	M	125	1.25	95	1	1	1	1	1	-	-	-	-	-	-	-
1580	3	F	121	2.50	90	3	3	3	3	3	2	2	1	5	4	5	-
1597	3	F	127	2.50	95	1	1	1	1	1	2	2	4	2	3	5	-
1605	3	M	122	2.25	95	1	1	1	1	1	2	1	4	5	4	5	-
1658	3	M	122	2.25	93	1	1	3	1	5	2	1	6	3	2	5	9
1689	3	M	121	2.25	92	1	1	1	1	3	2	2	2	2	1	5	-
1801	3	M	129	2.50	93	1	1	1	1	1	2	1	3	4	2	5	-
1840	3	F	121	2.00	93	3	3	3	3	3	2	4	1	4	4	4	3
1925	3	M	127	2.25	95	1	3	3	3	3	2	2	1	5	3	5	9
1953	3	M	137	2.25	99/	1	1	1	1	5	2	1	6	4	4	6	2
1958	3	M	127	2.00	98	1	1	1	1	1	3	1	3	1	1	6	2
2006	3	M	128	2.50	97	1	1	1	1	1	-	-	-	-	-	-	-
2053	3	F	121	2.00	95	1	1	6	6	1	2	2	3	3	3	5	-
2076	3	M	122	2.25	99	1	1	1	1	3	-	-	-	-	-	-	-
2199	3	M	129	2.25	97	1	3	3	3	3	2	2	1	6	9	5	3
2216	3	M	121	2.50	95	1	1	1	1	4	2	1	7	1	1	6	2
2218	3	M	124	2.25	95	1	3	3	3	3	2	2	1	4	4	5	5
2226	3	F	126	1.75	91	3	4	3	3	3	3	4	1	4	3	1	1
2277	3	F	122	2.25	96	1	1	6	6	6	-	2	5	1	9	5	5
2332	3	M	120	2.25	96	1	1	1	1	1	2	1	3	1	1	5	-
2684	5	M	126	2.50	90	1	1	3	3	3	2	2	1	6	4	5	5
2738	5	M	126	2.25	90	1	1	3	3	3	3	2	1	5	-	5	-

HIGHACHIEVER DATA

						Activities by YEAR					Fifth Year Responses to Selected Items						
ID#	Sc	Sx	IQ	Equi GPA	ITED Comp	1	2	3	4	5	4	5	6	7	9	12	13
53	1	F	133	4.00	99	1	1	1	1	1	2	2	4	5	4	7	2
77	1	F	129	4.00	99	1	1	1	1	3	2	1	1	4	4	6	2
105	1	F	124	4.00	97	1	1	1	1	3	2	2	1	4	3	6	2
106	1	F	129	4.00	97	1	1	1	1	3	2	2	1	4	3	6	2
110	1	F	129	4.00	99/	1	1	1	1	3	2	2	1	5	3	6	2
153	1	F	126	4.00	98	1	1	1	1	3	2	1	1	4	2	6	2
163	1	M	126	4.00	99	1	1	1	1	1	2	1	3	1	1	7	2
274	1	M	136	4.00	98	1	1	1	1	1	2	1	3	3	1	7	2
297	1	F	123	4.00	95	1	3	3	6	6	2	2	5	1	1	5	3
341	1	F	124	4.00	93	1	1	1	1	1	2	1	3	1	1	7	2
360	1	M	136	4.00	99	5	5	5	5	1	2	1	3	3	3	5	-

HIGHACHIEVER DATA con't.

						Activities by Fifth Year Responses										
				Equi	ITED	YEAR					to Selected Items					
ID#	Sc	Sx	IQ	GPA	Comp	1	2	3	4	5	4	5	6	7	9	12	13
362	1	F	128	4.00	99	3	3	3	3	3	1	1	1	4	-	1	1
371	1	F	127	4.00	95	1	1	1	1	6	2	2	5	1	1	6	2
394	1	F	120	4.00	93	1	3	3	6	6	2	1	5	2	3	5	5
412	1	M	123	4.00	96	1	1	1	1	1	-	-	-	-	-	-	-
436	1	F	129	4.00	99+	1	1	1	1	3	2	1	1	4	4	7	2
448	1	M	130	4.00	99+	1	1	1	1	3	2	2	1	6	4	6	2
466	1	M	135	4.00	99+	1	1	1	1	1	2	1	3	1	1	7	2
483	1	F	134	4.00	99	1	1	1	1	3	2	2	1	5	4	7	2
507	1	M	130	4.00	99+	1	1	1	1	1	2	1	3	1	1	7	2
628	1	F	123	4.00	97	1	1	1	1	1	2	2	3	1	1	7	2
640	1	M	132	4.00	99	1	1	1	1	3	2	2	8	3	4	6	2
654	1	F	135	4.00	98	1	1	1	1	3	2	1	1	5	4	6	2
664	1	F	134	4.00	99+	1	1	1	1	1	-	-	-	-	-	-	-
734	1	F	134	4.00	99	1	1	1	1	1	2	1	3	1	1	7	2
745	1	M	121	4.00	99	1	1	1	1	1	2	2	3	1	1	7	2
771	1	F	130	4.00	99+	1	1	1	1	3	2	1	1	5	4	6	2
876	1	F	123	4.00	98	1	1	1	6	3	-	-	-	-	-	-	-
879	1	F	126	4.00	96	1	1	1	1	3	2	1	8	1	4	-	-
899	1	F	121	4.00	98	1	3	1	1	3	2	2	1	4	4	6	2
919	1	F	120	4.00	98	2	3	3	3	6	2	2	5	1	1	4	1
925	1	F	125	4.00	99+	1	1	1	1	3	2	1	1	4	2	6	2
932	1	F	120	4.00	98	1	1	1	1	6	2	2	5	2	3	6	2
952	2	M	131	4.00	99+	1	1	1	1	1	2	1	3	3	1	7	2
967	2	F	122	4.00	91	1	1	1	1	3	2	5	1	-	4	6	2
978	2	M	127	4.00	95	1	1	1	1	-	-	-	-	-	-	-	-
983	2	F	135	4.00	99	1	1	1	1	3	2	2	1	4	3	6	2
986	2	M	138	4.00	99+	1	1	1	1	1	2	1	3	1	1	5	-
989	2	F	136	4.00	99+	1	1	1	1	3	2	2	1	4	3	6	2
1009	2	M	125	4.00	98	1	1	1	1	1	2	2	3	1	1	7	2
1034	2	F	131	4.00	99+	1	1	1	1	1	2	1	4	3	4	7	2
1039	2	F	136	4.00	99	1	1	1	1	1	2	1	3	1	1	7	2
1087	2	F	122	4.00	98	1	1	1	1	6	2	2	5	1	1	6	2
1117	2	F	130	4.00	99+	1	1	1	1	3	2	1	1	6	4	6	2
1150	2	F	127	4.00	99+	1	1	1	1	6	-	-	-	-	-	-	-
1152	2	M	128	4.00	98	1	1	1	1	1	2	2	3	3	1	7	2
1156	2	F	138	4.00	99+	1	1	1	1	3	2	1	1	4	4	6	2
1169	2	M	135	4.00	99+	1	1	1	1	1	2	1	3	1	1	7	2
1205	2	F	136	4.00	99+	1	1	1	1	1	2	1	4	2	4	7	2
1218	2	M	131	4.00	99+	1	1	1	1	1	2	2	3	1	1	7	2
1240	2	M	127	4.00	99+	1	1	1	1	1	2	2	3	1	1	7	2
1242	2	F	129	4.00	99+	1	1	1	3	3	2	2	1	4	4	6	2
1257	2	M	125	4.00	95	1	1	1	1	1	2	1	3	1	1	7	2

HIGHACHIEVER DATA con't.

						Activities by Fifth Year Responses										
				Equi	ITED	YEAR					to Selected Items					
ID#	Sc	Sx	IQ	GPA	Comp	1	2	3	4	5	4	5	6	7	9	12	13
1278	2	F	129	4.00	98	1	1	1	1	3	2	2	1	4	3	6	2
1288	2	M	138	4.00	99+	1	1	1	1	1	2	1	3	3	1	7	2
1331	2	M	136	4.00	99+	1	1	1	1	1	2	1	8	4	1	7	2
1336	2	M	125	4.00	96	1	1	1	1	1	2	1	3	3	1	7	2
1337	2	F	132	4.00	96	1	1	1	1	3	2	2	1	4	4	6	2
1343	2	F	132	4.00	96	1	1	3	3	3	2	2	1	5	4	5	10
1376	2	M	138	4.00	99+	1	1	1	1	1	2	1	3	1	1	7	2
1387	2	F	139	4.00	99+	1	1	1	6	6	2	2	5	1	1	5	-
1393	2	M	134	4.00	99+	1	1	1	1	3	2	1	8	2	4	6	2
1406	2	F	144	4.00	99	1	1	1	3	3	2	2	1	4	3	5	-
1409	2	F	129	4.00	99	1	1	1	1	1	2	1	3	1	1	7	2
1411	2	M	135	4.00	99+	1	1	1	1	1	-	-	-	-	-	-	-
1414	2	F	125	4.00	96	1	3	6	6	6	2	2	5	1	1	5	5
1425	2	F	126	4.00	98	1	1	1	6	6	2	2	5	1	1	5	5
1447	2	F	135	4.00	99+	1	1	1	1	3	2	1	1	4	2	6	2
1454	2	M	128	4.00	99+	1	1	1	1	1	2	1	3	2	3	5	-
1498	3	F	124	4.00	98	1	1	1	1	3	2	1	1	5	4	6	2
1553	3	M	129	4.00	98	1	1	1	1	3	-	-	-	-	-	-	-
1576	3	M	120	4.00	93	1	1	1	1	1	2	1	3	1	1	7	2
1628	3	M	129	4.00	98	1	1	1	1	1	2	1	3	1	1	7	2
1639	3	M	135	4.00	99+	1	1	1	1	3	2	1	1	5	4	6	2
1720	3	M	125	4.00	99+	1	1	1	1	1	2	2	3	1	1	7	2
1739	3	M	120	4.00	98	1	1	1	1	5	2	2	6	4	1	6	2
1763	3	F	122	4.00	93	1	1	1	1	3	2	1	1	4	4	7	2
1785	3	M	127	4.00	99+	1	1	1	1	3	2	2	1	7	2	5	5
1832	3	M	126	4.00	96	1	1	1	1	5	2	2	6	4	1	6	2
1884	3	F	123	4.00	97	1	1	1	1	1	2	1	3	1	1	7	2
1898	3	M	123	4.00	99+	1	1	1	1	1	2	1	3	1	1	6	2
1952	3	F	121	4.00	93	3	3	6	6	6	1	2	5	1	1	1	1
2069	3	F	128	4.00	96	1	1	1	6	6	2	2	5	1	1	6	2
2141	3	M	134	4.00	99	1	1	1	1	1	2	2	3	1	1	7	2
2144	3	F	125	4.00	99	1	1	1	1	3	2	2	1	4	4	7	2
2148	3	F	130	4.00	99	1	3	3	3	6	2	2	5	1	1	5	5
2184	3	M	132	4.00	99	1	1	1	1	1	2	1	3	1	1	7	2
2201	3	F	121	4.00	97	1	1	1	1	3	2	2	1	4	4	6	2
2247	3	F	135	4.00	99+	1	1	1	1	1	2	1	2	3	4	7	2
2259	3	F	126	4.00	96	1	1	1	3	3	2	2	1	4	4	6	2
2330	3	F	129	4.00	99+	1	1	1	1	3	2	2	1	4	4	6	2
2343	3	F	135	4.00	99	1	1	1	1	1	2	1	3	2	1	5	-
2586	5	M	136	4.00	99+	1	1	1	1	1	2	2	3	1	1	7	2
2592	5	M	127	4.00	98	1	1	3	1	3	2	2	3	5	4	6	2
2608	5	M	130	4.00	95	1	1	1	1	1	2	1	3	1	1	5	-
2757	5	F	135	4.00	99+	1	1	1	1	3	2	2	1	4	3	6	2