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Possible causes of underachievement in the eighth grade of a large urban high school for year 1962-1963

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POSSIBLE CAUSES OF UNDERACHIEVEMENT IN THE EIGHTH GRADE OF A LARGE URBAN HIGH SCHOOL FOR THE YEAR 1962-1963

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APPROVAL SHEET

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CHAPTER I

INTRODUCTION TO THE STUDY

There have been many causes for underachievement. These varied with the school, the type of instruction, the teacher, the classroom, the home background, and the student, but many causes were basically the same regardless of the situation or student involved.

I. THE PROBLEM

Statement of the problem. This study was undertaken to find information that might reveal the possible causes of underachievement in the eighth grade of a large urban high school for the year 1962-1963.

Purpose of the study. This study was to explore and list the possible causes of underachievement in the experimental group with possible implications for improving the educational climate for these students. The eighth grade, important in this urban high school, has usually been found in a junior high school, but it was the beginning grade of this school. These students actually have felt they were freshman in high school.

This grade has proven one of crucial work and activity for most students. If they achieved well at this time, it was less likely that they would drop out in the ninth grade.

It was important that this be a good year for the students in every way. If the cause of underachievement could be determined, this would give a foundation for future work and study to remedy these causes as much as possible in order to help the students to achieve their best.

II. SOURCES OF INFORMATION

The sources considered the best for obtaining data pertaining to the school conduct and academic progress of the students were the following:

1. Cumulative folders which contained:
    a. Grades of academic subjects
    b. Anecdotal records of previous teachers
    c. Schools attended
    d. Hobbies, interests, and part time work
    e. Attendance record
    f. Record of illnesses and physical difficulties
    g. Parental occupations and cooperation
    h. Record of unusual conduct and personality habits
    i. Intelligence tests
    j. Achievement tests
    k. Aptitude tests
    l. Reading tests
    m. Occupational interest inventory tests
    n. Individual psychological examinations

2. Observation by present teachers
3. Student questionnaires
4. Self-evaluation study made by the school in 1962-63

III. PROCEDURES USED IN THIS STUDY

The entire eighth grade of 239 students was selected for this study from a large urban high school. The reason for choosing the eighth grade was the fact that most of the author's experience in teaching had been at this level among specifically designated slow learners, problem students, and academically talented students.

The following methods were selected for obtaining and using the data for this study:

1. The students were studied and observed over a nine months' school term: about sixty-two per cent in one class each, some in a class and a homeroom, and some in two classes.
2. Possible causative factors of underachievement were recorded in the cumulative folders and later became a part of the basis for the data in Chapter V.
3. All the data in the cumulative folders were studied intensively over a two months' period to understand and tabulate the data needed.

4. Intelligence tests were used to find:
   a. Verbal IQ's
   b. Non-verbal IQ's
   c. Total IQ's
   d. The number achieving with IQ's below 90
   e. The grade equivalents to show the number achieving below grade level work
   f. Percentile ranks of student IQ's to show the number performing at a low percentile rank in the sixth grade
   g. The IQ's from the California Test of Mental Maturity to show those achieving at a low percentile in the seventh grade
5. Achievement tests were used to find:
   a. The grade equivalents of the students in skills for work-study and academic subjects in order to find those performing in below grade level work, while they were still in the fifth and sixth grades
   b. The percentile ranks of the students in these same study skills to show those achieving at a low percentile in the fifth and sixth grades
   c. The exact percentage of the group working on, below or above grade level.

d. The grade equivalents of the students in reading skills to show those reading below grade level in the seven basic reading skills

e. The percentile ranks of the students to show those who were achieving at a low percentile rank in reading skills in the seventh grade

6. Aptitude tests were used to find:

a. Those whose aptitude ranked at or below the 30th percentile

b. The aptitude of the group in combined numerical and verbal reasoning as a general indicator of aptitude for academic studies

7. Occupational interest inventory tests were used to show:

a. The percentile rank of their field of interests

b. The percentile rank of their type of interest

c. The percentile rank of their level of interest

8. In other areas if they might cause underachievement difficulties of this group were listed such as:

a. Health and personality habits

b. Attendance record and number of schools attended

c. Hobbies, other interests, and part time work

d. Home influences such as parental attitudes, occupations and the number of others in the home

e. Psychological examinations

9. Academic subjects were used to find:

a. The number of failures in the grades

b. Quality of students' work by grades or subjects

c. Number of subject failures

10. Questionnaires were used for the students to state the cause of their underachievement

11. A study was made of the self-evaluation of the school for 1962-63 to discover the status of the parents' education and possible influences from the environment of the students

IV. DEFINITION OF TERMS USED

Underachievement:-academic achievement at a level below the one expected on the basis of the student's performance on general aptitude tests.

Slow learner:-one who from his records seemed to lack ability to perform in the regular grade level of this school.

"X" program in the school studied:-a program designed for the student who did very creditable work, but who could not quite do "honor" work.

"Y" program in the school studied:-a program designed for the student with much less ability, but who could not pass regular work.

"C" program of this school:-a program geared for the slow learner student who had an IQ between 75 and 90 or who had failed to demonstrate ability to pass regular "Y" work.

V. LIMITATIONS

This study was limited to the use of the cumulative folders, the questionnaires to students, results of the evaluation of the school, and the anecdotal records of the teachers. Some of the folders were not complete, for the students transferred and all of their elementary school records were not available. There were a few students for whom test scores were lacking. There were not enough anecdotal records from students who did not take their elementary work in this city, and only the personal data and grades for academic work were given. No psychiatric review of personality or instrument of image projection was used. Within these limitations, this study has given the compilation and interpretation of the data as listed.

VI. ORGANIZATION OF THE REMAINDER OF THE THESIS

After much of the literature pertaining to underachievement had been read, that which the author felt was

most pertinent to this study was reviewed in Chapter II. The trend and need to encourage achievement was discussed, and possible causes of underachievement were also related in this chapter.

The group studied was described, and the evidence of strengths and weaknesses in relying on IQ's to predict ability were considered in Chapter III. The scores on the Lorge-Thorndike Intelligence Tests and the California Tests of Mental Maturity to discover the verbal IQ, the non-verbal IQ, and the total IQ of each student were also tabulated in Chapter III.

Tests scores for skills, interests and aptitudes for such tests as the Science Research Associates, the Iowa Silent Reading, the Occupational Interest Inventory, and the Differential Aptitude Tests were reviewed, tabulated, and interpreted as far as possible in Chapter IV.

The health, emotional, and personality habits, given in the anecdotal records of the cumulative folder were intensively investigated, and the frequency of the recurrent habits were listed in Chapter V. Evidences of hereditary and environmental influences were considered, and the more important ones were given in this chapter. Results of questionnaires as answered by the students, as to the frequency of various causes of underachievement were included. The number of subjects failed, the number of schools attended

prior to the present one, the total of grades by subjects, the number employed in part time work, their hobbies and school activities were also examined and inventoried in Chapter V.

In Chapter VI, a summary was made of the above data, conclusions were drawn, and recommendations were given as to the possible causes of underachievement in the eighth grade of this large urban high school.

CHAPTER II

REVIEW OF LITERATURE PERTAINING TO UNDERACHIEVEMENT

I. TREND AND NEED TO ENCOURAGE ACHIEVEMENT

A great educational effort was made in the 1930's to wipe out illiteracy and to make public education more widespread. Retarded and disturbed children received special attention in the later 1940's. There followed an even greater effort by educators to bring education to all young people in the 1950's. At the present time, more and more attention is being given to the students who may profit from a college education or other types of vocational training beyond high school.[1]

The great need today is to use all the intellectual capacity of students. The need for people in occupations termed "professional" increased by 46 per cent in the years between 1950-1958 according to Wood.[2] It was estimated that by 1975 this country will need twice as many scientists and

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1. Irene H. Impellizzeri, "Nature and Scope of the Problem," Guidance for the Underachiever with Special Ability, ed. by Leonard N. Miller, (Washington: U. S. Government Printing Office, 1961), p. 2.

2. Irene H. Impellizzeri, "Nature and Scope of the Problem," Guidance for the Underachiever with Special Ability, ed. by Leonard N. Miller, (Washington: U. S. Government Printing Office, 1961), citing Wood, but no other references given.

engineers, and of course, the need for teachers to teach these students will likewise increase.[3] This pointed out the need to find ways to improve the level of the underachievement in any group.

II. SOME CAUSES OF UNDERACHIEVEMENT

The underachievement of gifted students. The conference on the Identification of the Academically Talented Student, February, 1958, reported that "15 to 25 per cent of the gifted students in most school systems fall into the category of underachievers, and in some schools, the incidence is even higher."[4]

The high artistic ability and social leadership of which gifted students may be capable would not be evidenced from an IQ score.[5] Many a gifted person has learned to get along well with his superiors and did well enough, but he failed to make to society the real contribution of which he was capable because he was not sufficiently motivated.[6] Even

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3. Impellizzeri, op. cit., p. 1.

4. Ruth Strang, "Motivating the Academically Talented," The Identification and Education of the Academically Talented Student in the American Secondary School, (Washington: NEA, 1958), p. 60.

5. Charles F. Kemp, The Church: The Gifted and the Retarded Child, (St. Louis, Mo., The Bethany Press, 1957), p. 30.

6. Ibid.

according to test standards, he probably would not be an underachiever. This problem was so acute that Goldberg Passow in his Planning for Talented Youth stated that "it results in an estimated loss to society of at least half the people who have the capacity for making an outstanding contribution."[7]

Professor Leta S. Hollingsworth of Columbia University, famous for her studies of the gifted child, said the gifted student took at least half the time to complete the normal work and was consequently bored with school work. She also ranked high in causes of underachievement the fact that gifted children often lacked congenial companionship with children of their own age.[8] They wanted to be a part of their own age group and not to be set aside because of their giftedness. They might even feel inferior because their social adjustment was unsatisfactory. They might develop attitudes of conceit and smugness and might draw away from the very group to which they desired to belong.

Another problem in underachievement was identifying the bright student. John M. Stalnaker, President of the

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7. Charles F. Kemp, The Church: The Gifted and the Retarded Child, (St. Louis: The Bethany Press, 1957), p. 32, citing Goldberg Passow, Planning for Talented Youth, p. 19.

8. Charles F. Kemp, The Church: The Gifted and the Retarded Child, (St. Louis: The Bethany Press, 1957), p. 52, citing Leta S. Hollingsworth, Studies of the Gifted Child, p. 73.

National Merit Scholarship Corporation, stated that the most common error in identifying the bright student was based on the assumption that:

> Mental organization is a simple unitary thing and that IQ or some other measure is about as perfect an index as can be obtained. There is ample evidence that the mental organization is highly complex and that single measure tests are apt to conceal important differences.[9]

Varying skills and abilities were needed in a highly skilled and trained scientist, but an outstanding historian might have somewhat different skills and often tests did not show in which direction the skills lay.

The underachievement of slow learners. The slow learner might underachieve. In a study, Charles Veit stated that the slow-learner was often sensitive to the fact that he could not achieve as others did.[10] These students wanted to achieve, but they did not have the capacity of the brighter students. Some of these slow learners were deliquent; some were handicapped; some were retarded, but whatever their problem, these factors might have contributed to underachievement.

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9. John M. Stalnaker, "Methods of Identification," The Identification and Education of the Academically Talented Student in the American Secondary School, (Washington: The Conference Report, NEA, 1958), p. 24.

10. Charles Veit, "How Can We Better Motivate the Underachiever and the Indifferent Student?," Bulletin of the National Association of Secondary School Principals, (Washington: NEA, April 1960), p. 178.

Personality traits and qualities of character. To what extent did a child keep on completing task after task and being successful at them?[11] How persistent was a student to continue achieving? His energy level might have been a factor to keep him working or he might have been more studious. Another aspect of personality was the character of the student. What were the aspects of behavior on which a definite social value has been placed in the mind of the student? It might be honesty, helpfulness, cooperation or the like. When adjustment was considered, did the student set up the best behavior patterns which would lead him to fit into his social setting acceptably?[12] Temperament, too, might play a part in underachievement. Some students had more enthusiasm for studying; their attitudes were good; and there was not the aversion to study that some of their peers had. Prejudice might enter into this aversion; especially if they had heard parents say they disliked a certain subject and felt it was understandable why a young person was not interested.[13]

Hereditary and environmental influences. The cause for underachievement might be placed on personal factors,

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11. Stalnaker, op. cit., p. 25.

12. Robert L. Thorndike, and Elizabeth Hagen, Measurement and Evaluation in Psychology and Education, (New York: London, John Wiley and Sons, Inc., 1955), p. 23.

13. Ibid., p. 24.

having to do with hereditary and environmental and home influences.[14] It was impossible to isolate and measure these influences separately. The IQ might or might not show the cultural background of the individual. Many young people have had many material possessions and these proved a great handicap to learning.

The quality of home life, the value of family discussions, the interest but not pressure from parents, the intellectual stimulus of the home life, and the freedom allowed the individual in developing were important areas in the understanding of a student's achievement.

The onset of underachievement repeatedly is attributable to the home and the parents.[15] The child-rearing practices and parental attitudes might influence the achievement of a student. Winterbottom said that children whose mothers taught them at an early age to be self-reliant and independent tended to achieve more than those of whom less was demanded in the way of independent activities.[16] Pierce and Bowman in studying

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14. Strang, op. cit., p. 59.

15. Edward Frankel, "Gifted Academic Underachiever," Science Teacher, (Washington: NSTS, Feb. 1961), Vol. 28, No. 1, p. 50.

16. Edward Frankel, "Gifted Academic Underachiever," Science Teacher (Washington: NSTS, Feb. 1961), Vol. 28, No. 1, p. 50, citing M. P. Winterbottom, "The Relationship of Childhood Training in Independence to Achievement Motivation," Unpublished Doctor's Thesis. University of Michigan, Ann Arbor, Michigan, 1953.

motivational patterns in superior high school students found that mothers of high achieving boys held democratic attitudes and encouraged verbalization in their children at an early age.[17]

Miriam Goldberg in her studies on underachievement emphasized the role of the family status in this problem. She found that disruption of the normal family life, the death of a parent, divorce, absence of the father, the fact that the boy in the family could not identify himself with the male member of the family, high pressures, and even disinterest were the most common causes for underachievement related to home conditions.[18]

Too high a premium may have been placed on conformity with little attention given to individual differences. John M. Stalnaker stated:

> Clarence Faust, vice-president of the Ford Foundation, has recently pointed out that one of the most serious dangers of a society such as ours is that it encourages, especially in times of stress, the development of the organizational man, the social and intellectual conformist, the well-

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17. J. V. Pierce and P. H. Bowman, "Motivation Patterns of Superior High School Students," The Gifted Student, Monograph No. 2, U. S. Office of Education, Dept. of Health, Education, and Welfare, (Washington: Government Printing Office, 1960), p. 33.

18. Miriam Goldberg, "Studies in Underachievement Among the Academically Talented," Freeing Capacity to Learn, Reports from the Fourth ASCD Research Institute, (Washington: NEA, 1960), p. 62 ff.

> balanced and well-adjusted individual, and tends to discourage if not suppress the unique, the different, and the pioneer.[19]

Too severe pressure from parents and teachers to conform might cause not only a poor relationship but also a resistance to learning.[20]

Lack of motivation. Potential dropouts, failures, and even academically talented students needed motivation.[21] A student might be motivated by working towards an accomplishment of which he could be proud, or he might develop a special talent. Being the kind of person he would enjoy being might lead him to do well. Winning praise and honors might be an incentive. Sometimes special privilege or looking toward an interesting career spurred him to continue achievement.[22] The unconscious need for achievement might be perhaps the student's greatest motivating factor.[23]

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19. Stalnaker, op. cit., p. 26.

20. Strang, op. cit., p. 60.

21. Carlos de Zafra, Jr., Gladys W. Balcom, and Elizabeth B. Mitchell, Motivation (West Orange: The Economic Press, Inc., 1963), p. 1.

22. Ibid., p. 6.

23. Paul H. Bowman, "Personality and Scholastic Underachievement," Freeing Capacity to Learn, (Reports from Fourth ASCD Research Institute, (Washington: NEA, 1960), p. 45.

Teacher-pupil relationship. The teacher-pupil relationship might be very vital to achievement in any student whether he were gifted, creative, highly intelligent, a reluctant learner, or a slow learner. Paul Torrence called it a creative relationship, a vital coexperiencing and not just a stimulus-response situation.[24] The responsiveness of the teacher to each and all regardless of their difficulty was absolutely necessary to the learning situation. One educator stated "there is real need for more mental sunshine in many classrooms."[25] The teacher should provide a place of inspiration, a place for learning, questioning, and finding answers to these questions.[26]

Physical difficulties. DeHaan and Kough state that:

> Young people with physical handicaps have the same basic social and emotional needs, the same general pattern of development, and the same range of educational possibilities as do all young persons.[27]

Twenty-nine per cent, agreed by most investigators, had

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24. Paul E. Torrence, Education and the Creative Potential. (Minneapolis: University of Minnesota Press, 1963), p. 9.

25. Ibid., p. 25

26. Willard Abraham, "Motivating the Gifted Underachiever," Education, (Indianapolis: Bobbs Merrill Co., Inc., Apr. 1962), pp. 468 ff.

27. Robert F. DeHaan and Jack Kough, Identifying Students with Special Needs, (Chicago: Science Research Associates, Inc. 1956), p. 78.

handicaps in hearing, eyesight, and speech. Two per cent had crippling handicaps. Identification of symptoms, cooperation with the parents and medical authorities, and understanding the difficulties with which the student learns as the responsibilities of every teacher were reported by Robert F. DeHaan and Jack Kough.[28]

Lack of skills in certain subjects. A student might be deficient in subject matter areas, but a most serious deficiency could be in reading. Willard Abraham revealed in his study that the gifted underachiever's problem might stem from visual difficulties, physical deficiencies, environmental factors, lack of ability, poor instruction, or emotional difficulties, but whatever the problem, he must have learned to read if he has achieved. It was essential, of course, that the student learn the basic reading skills at an early age. From this point, guidance, variety of reading, consideration of his own interests, varied opportunity, understanding reading as a source of great pleasure as well as learning, and the lack of emotional blockage might stimulate and carry the reading process far beyond learning only the basic skills.[29]

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28. Ibid.

29. Richard S. Alm, "The Reluctant Reader," The Underachiever in Reading, edited by H. Alan Robinson, (Chicago: Proceedings of Annual Conference on Reading, University of Chicago Press, 1962), pp. 101-102.

Many boys and girls encountered difficulty with subject areas in elementary school; others might have achieved less on a junior high school level and might have found other interests more rewarding. Dr. Stouffer, Director of Social Relations, Harvard University, stated: "Clearly, a more intensive statistical and clinical study of boys and girls is needed at the end of the eighth grade, or whenever the critical choice is reached with regard to the high-school program of studies."[30]

III. SUMMARY

In the past few years there has been a definite trend towards greater encouragement for the underachiever by special programs and by a greater understanding of his problems. Fifteen to twenty-five per cent of the gifted students were placed in a category of underachievement. One educator felt that at least one-half of the students who could make an outstanding contribution to society did not do so.

Identification of the underachiever was found to be difficult, and it was believed that tests often concealed rather than revealed important differences. Educators stated that the slow learners were sensitive to their inabilities

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30. Samuel A. Stouffer, "Problems Related to the Use of Academic Ability," The Identification and Education of the Academically Talented Student in the American Secondary School, (Washington: The Conference Report, NEA, Feb., 1958), p. 38.

to learn as others did. Likewise the importance of personality traits and qualities of character in influencing achievement were shown.

Pertinent literature placed a large responsibility on the parent and the home influences for motivating the young student to achieve. Such motivation to achieve - however accomplished - was considered basic to most learning. Torrence stressed greatly the need for a vital teacher-pupil relationship. Physical difficulties also were believed to play an important role in the lack of achievement of a handicapped student.

Lack of skills in academic subjects especially in reading offered a great hindrance. Some felt that all students should be carefully counseled before selecting a program of studies especially at the end of the eighth grade. Generally there has been much written about the underachiever and his problems, and it was indicated the flow would be continuous until more answers have been found to the problems. This was presented as a challenging opportunity for teachers as well as parents to help eliminate underachievement.[31]

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31. Kemp, op. cit., pp. 67 ff.

CHAPTER III

THE DISTRIBUTION AND INTERPRETATION OF THE IQ'S

I. DESCRIPTION OF THE GROUP

The group studied consisted of 239 students who had just completed the eighth grade or were working in the grade as this study was being made. Fourteen were on the Certificate Program, while the rest were doing regular work either at "X" or "Y" level. They were the only eighth grade group to be found actually located in a high school building in this city of 230,000 population. They felt somewhat out of place, but they lived too far from the only junior high school in the neighboring area, and the junior high school was not large enough to house this group.

Hence this group was put into a more difficult situation than most eighth grade groups and they had some difficulty acquiring status for themselves. Some believed this was a cause of some of the underachievement or lack of adjustment found in the group.

II. PROGRAM IN THIS SCHOOL

The program in this school was designed for the students to work on four levels of ability. There was an honors program, but this was not offered below the tenth grade. The "X" and "Y" programs have already been defined.

The "C" program for the slow learner was offered in English, science, history, mathematics, and education for employment, but the elective courses were not classified under the "C" work. The students did not get a regular Carnegie unit for any work except that completed in electives. If any student progressed well enough to come out of the "C" classes back into the "Y" classes, he was placed where it was felt he could work best, and he was given credit for the equivalent of whatever work the teacher and counselor felt he had completed. He worked at his own rate of speed, and though there was group work, the student was watched very closely, and the classes were limited to 15-20 students.

If a student continued in the "C" courses until he completed the tenth grade, he received a certificate which meant that the student had satisfactory behavior and attendance, that he had ability to work in groups, that he possessed acceptable work habits, and that he had progressed in basic work skills as far as he was capable. If he chose to return to regular work after the tenth grade, he had to return to regular "Y" classes. Three of the group in the fifteen certificate young people used in this study went back into regular work at the end of the eighth grade and were progressing slowly through the "Y" courses, but with no more apparent difficulty than the regular "Y" students.

As shown, something was being done to study and work with the underachieving student in the certificate courses,

but there was great cause for concern for the group in the "Y" program who were underachieving. It might be well to interpret first the IQ's of the group being studied.

III. RELIABILITY OF IQ SCORES

Strengths of IQ scores. The strengths and weaknesses involved in using IQ's must be considered in order to understand the use of IQ's. One strength lay in the fact that the IQ test plus achievement grades has offered the best basis for prediction of potential achievement.[32] If the IQ were high, then effort could be made to discover if there were other causes why the student didn't achieve in line with what was expected of him. Cultural background could make a difference. William Turnbull stated that most of the same cultural factors which influenced test scores also appeared to influence academic achievement which was to be predicted by means of these scores.[33] Tests of developed ability, therefore, were a better basis for prediction because they tapped some of the basic verbal and mathematical learnings that all

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32. Henry Chauncey, "Measurement and Prediction-Tests of Academic Ability," The Identification and Education of the Academically Talented Student in the American Secondary School, (Washington, D. C., NEA 1958), p. 28.

33. William W. Turnbull, "Influence of Cultural Background on Predictive Test Scores," Proceedings 1949 Invitational Conference on Testing Problems, (Princeton, N. J.: Educational Testing Service, 1950), pp. 29-34.

schools emphasized. An individual's progress might be a combination of his own ability and the educational experience he had up to that time.[34]

Another advantage of such IQ test scores was the fact that the student could be compared with his own group or according to national norms which have been provided by most IQ tests. These tests might not point out the greatest achievers, but at least they would indicate the group in which the best achievement would probably be found.

Weaknesses. Weaknesses in using IQ tests might be found in the fact that they did not entirely measure potential creativity, original thinking and inventiveness.[35] These factors were more intangible and would be found and developed in other ways, maybe through the creativity of a favorite teacher or a beloved parent. There were factors involved in the administration of the test. Often conditions were not the best. One example might be given of a teacher's endeavoring to give a very difficult Metropolitan Reading Test to a group who for the most part were not culturally or academically prepared to take such a test.

The student himself might not be emotionally prepared, might be sick, might be resistant to taking the tests, or

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34. Chauncey, op. cit., pp. 28-29.

35. Ibid., p. 30.

might have had home problems to hinder him. It was never certain how much these played a part unless the administrator was very observant as in the case of one boy with an IQ well over 140 who scored very poorly on a Reading Test administered in the seventh grade. A homeroom teacher noted his apparent indifference and later found that the test did not measure the boy's ability which had been shown from other IQ scores and from his demonstrated ability in the classroom.

IV. RESULTS FROM LORGE-THORNDIKE INTELLIGENCE TESTS

The Lorge-Thorndike Intelligence Test was given to this group in the fifth and sixth grades. Thirty-five of them took the test in the fifth grade and one-hundred thirty-seven took it in the sixth grade. There were a few who took the tests in both grades, but since this test is usually given in the sixth grade, these were the only scores considered except for those who had taken it only in the fifth grade and at no other time. Of this group, fifty-three did not take the test either because they transferred later from another school or were absent from school on the day of the test. Fourteen members of the group who took the tests were on the certificate program.

From the raw sources of these intelligence tests, the grade percentiles, the age equivalents, the grade equivalents, and the IQ's were obtained for both the verbal and the non-

verbal parts of the tests. At the end were given the total IQ's combining both the verbal and non-verbal IQ's of the students.

Table I has shown the verbal, non-verbal IQ's of those students who took the tests in the fifth grade. Table II has shown the total IQ's for the group in the same grade. Table III has shown the verbal, and non-verbal IQ's of the students who took the tests in the sixth grade. Table IV has shown the total IQ's for the same group as in Table III. A condensation of Tables I, II, III, and IV might point out more clearly these facts:

IQ's	Verbal		Non-verbal		Total	
	Fifth	Sixth	Fifth	Sixth	Fifth	Sixth
Below 90	5	16	6	15	5	10
Between 91-100	9	22	7	29	7	27
Above 100	21	99	22	93	23	100

Those pupils with IQ's below 90 were usually placed in the "C" program. Those with IQ's between 91-100 might be placed in the "C" program if they were doing failing work. If the parents did not desire their children to be placed in the "C" program or if the students themselves did not wish to pursue this program, they were allowed to remain in the regular program if they could pass their work. Usually those with IQ's above 100 could work in a regular program if other factors for achievement were adequate.

TABLE I

DISTRIBUTION OF VERBAL AND NON-VERBAL IQ'S OF THE FIFTH GRADE EXPERIMENTAL GROUP FROM THE LORGE-THORNDIKE INTELLIGENCE TEST SCORES*

Range of IQ's	Verbal IQ						Non-verbal IQ					
	Boys		Girls		Total		Boys		Girls		Total	
	f	cf	f	cf	f	cf	f	cf	f	cf	f	cf
141-150												
131-140			1	21	1	35			1	21	1	35
121-130	1	14	1	20	2	34			2	20	2	34
111-120	3	13	9	19	12	32	3	14	4	18	7	32
101-110	3	10	3	10	6	20	6	11	6	14	12	25
91-100	4	7	5	7	9	14	1	5	6	8	7	13
81-90	2	3	2	2	4	5	4	4	2	2	6	6
71-80	1	1			1	1						

* Only a part of the experimental group took the tests in the fifth grade.

TABLE II

DISTRIBUTION OF TOTAL IQ'S OF THE FIFTH GRADE EXPERIMENTAL GROUP FROM THE LORGE-THORNDIKE INTELLIGENCE TEST SCORES

Range of IQ's	Boys		Girls		Total	
	f**	cf***	f	cf	f	cf
141-150						
131-140			1	21	1	35
121-130			1	20	1	34
111-120	1	14	6	19	7	33
101-110	7	13	7	13	14	26
91-100	3	6	4	6	7	12
81-90	2	3	2	2	4	5
71-80	1	1			1	1

** f=frequency (number at each level)
*** cf=cumulative frequency (number on or below that level)

TABLE III

DISTRIBUTION OF VERBAL AND NON-VERBAL IQ'S OF THE SIXTH GRADE EXPERIMENTAL GROUP FROM THE LORGE-THORNDIKE INTELLIGENCE TEST SCORES

Range of IQ's	Verbal IQ						Non-verbal IQ					
	Boys		Girls		Total		Boys		Girls		Total	
	f	cf	f	cf	f	cf	f	cf	f	cf	f	cf
141-150	1	62	4	75	5	137						
131-140	9	61	7	71	16	132	2	62	6	75	8	137
121-130	11	52	10	64	21	116	13	60	8	69	21	129
111-120	9	41	25	54	34	95	7	47	22	61	29	108
101-110	7	32	16	29	23	61	19	40	16	39	35	79
91-100	15	25	7	13	22	38	13	21	16	23	29	44
81-90	6	10	5	6	11	16	7	8	7	7	14	15
71-80	4	4	1	1	5	5	1	1			1	1

TABLE IV

DISTRIBUTION OF TOTAL IQ'S OF THE SIXTH GRADE EXPERIMENTAL GROUP FROM THE LORGE-THORNDIKE INTELLIGENCE TEST SCORES

Range of IQ's	Boys		Girls		Total	
	f	cf	f	cf	f	cf
141-150	1	62			1	137
131-140	4	61	6	75	10	136
121-130	10	57	12	69	22	126
111-120	13	47	22	57	35	104
101-110	12	34	20	35	32	69
91-100	14	22	13	15	27	37
81-90	7	8	2	2	9	10
71-80	1	1			1	1

Table V shows the same information as Tables I-IV except that it was for the "C" students. The Lorge-Thorndike Tests were administered to the "C" group under study while they were still on the regular program. This table has shown only one student with a total IQ above 100, three with total IQ's between 91-100, and ten with total IQ's below 90. Those four students with IQ's above 90 might work hard enough to get back into the regular program. Those with IQ's below 90 from Tables I-IV might have to go into the "C" program. A student could enter the "C" program at any time from the seventh grade through the tenth. Counselors usually tried to place students at the seventh grade level into the "C" program if his work and IQ level justified it.

Grade equivalents from the Lorge-Thorndike tests taken at the fifth and sixth grade levels have been shown in Table VI. A condensation of this table might point out more clearly facts vital to this study.

	Fifth Grade		Sixth Grade	
Grade Level	Verbal	Non-verbal	Verbal	Non-verbal
Below	11	12	33	33
On	7	9	15	17
Above	17	14	89	87

The large number of the group studied working below grade level might be called underachievers. The per cents achieving on, below, and above grade level have been shown in Table VII. The concern for this study was the 34.3 per

TABLE V

DISTRIBUTION OF IQ'S OF THE "C" GROUP
FROM THE LORGE-THORNDIKE INTELLIGENCE TEST SCORES*

FIFTH GRADE

Range of IQ's	Verbal IQ						Non-verbal IQ					
	Boys		Girls		Total		Boys		Girls		Total	
	f	cf	f	cf	f	cf	f	cf	f	cf	f	cf
101-110												
91-100			2	4	2	7			1	4	1	7
81-90	1	3	1	1	2	5	2	3	3	3	5	6
71-80	1	2	1	1	2	3	1	1			1	1
61-70	1	1			1	1						

SIXTH GRADE

Range of IQ's	Verbal IQ						Non-verbal IQ					
	Boys		Girls		Total		Boys		Girls		Total	
	f	cf	f	cf	f	cf	f	cf	f	cf	f	cf
101-110			1	3	1	7	1	4			1	7
91-100	3	4			3	6			3	3	3	6
81-90	1	1	2	2	3	3	3	3			3	3
71-80												
61-70												

TOTAL IQ'S

Range of IQ's	Fifth Grade						Sixth Grade					
	Boys		Girls		Total		Boys		Girls		Total	
	f	cf	f	cf	f	cf	f	cf	f	cf	f	cf
101-110							1	4			1	7
91-100			1	4	1	7	1	3	1	3	2	6
81-90	1	3	3	3	4	6	2	2	1	2	3	4
71-80	2	2			2	2			1	1	1	1
61-70												

* One did not take the test.

TABLE VI

GRADE EQUIVALENTS FROM THE LORGE-THORNDIKE INTELLIGENCE TESTS SCORES

Fifth Grade Level*

Grade	Verbal						Non-verbal					
	Boys		Girls		Total		Boys		Girls		Total	
	f	cf	f	cf	f	cf	f	cf	f	cf	f	cf
12th												
11th	1	14	1	21	2	35						
10th							1	14			1	35
9th									1	21	1	34
8th	1	13	1	20	2	33	3	13	1	20	4	33
7th	2	12	2	19	4	31	3	10	2	19	5	29
6th	2	10	7	17	9	27	1	7	2	17	3	24
5th	2	8	5	10	7	18	3	6	6	15	9	21
4th	4	6	4	5	8	11	2	3	6	9	8	12
3rd	2	2	1	1	3	3	1	1	3	3	4	4
2nd												
1st												

Sixth Grade Level

Grade	Verbal						Non-verbal					
	Boys		Girls		Total		Boys		Girls		Total	
	f	cf	f	cf	f	cf	f	cf	f	cf	f	cf
12th			1	75	1	137			1	75	1	137
11th	20	62	16	74	36	136	16	62	16	74	32	136
10th	1	42	8	58	9	100	2	46	8	58	10	104
9th	4	41	7	50	11	91	4	44	3	50	7	94
8th	6	37	12	43	18	80	7	40	14	47	21	87
7th	3	31	11	31	14	62	7	33	9	33	16	66
6th	5	28	10	20	15	48	8	26	9	24	17	50
5th	9	23	6	10	15	33	8	18	3	15	11	33
4th	11	14	3	4	14	18	4	10	11	12	15	22
3rd	3	3	1	1	4	4	6	6		1	6	7
2nd									1	1	1	
1st												

* Only 35 took the test at the fifth grade level.

TABLE VII

PER CENT WORKING ON, BELOW, ABOVE GRADE LEVEL FROM LORGE-THORNDIKE INTELLIGENCE TEST SCORES

	Verbal			Non-verbal		
GROUP AT THE FIFTH GRADE LEVEL	Boys	Girls	Total	Boys	Girls	Total
Below grade level	42.9	23.8	31.4	21.4	42.8	34.3
Grade level	14.2	23.8	20.0	21.4	28.6	25.7
Above grade level	42.9	52.4	48.6	57.2	28.6	40.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
On or above grade level	57.1	86.2	68.6	78.6	57.2	65.7
GROUP AT THE SIXTH GRADE LEVEL						
Below grade level	37.1	13.5	24.3	29.0	20.3	24.3
Grade level	8.1	13.5	11.0	12.9	12.1	12.5
Above grade level	54.8	73.0	64.7	58.1	67.6	63.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
On or above grade level	62.9	86.5	75.7	71.7	79.7	75.7

cent performing below grade level in the fifth grade, and the 24.3 per cent performing below grade level in the sixth grade. Many of these students were in the "Y" program mentioned before, but there were implications as to underachievement. In Table VIII have been shown the grade equivalents of the "C" students achieving below, on and above grade level. Only one pupil was achieving on grade level in the fifth grade, and none above. In the verbal scores in the sixth grade, two were achieving on grade level, and one was performing above grade level. In the same grade only one was achieving above grade level in the non-verbal scores and none on grade level. These scores were to be expected from such slow-learners as the "C" students.

Percentile norms have been widely adaptable and applicable. They have been used wherever an appropriate normative group could be found to serve as a comparison.[36] The percentile ranks in the Lorge-Thorndike Tests were computed according to national norms of the fifth and sixth grade levels. In Tables IX and X, the percentile ranks of the group studied were presented for the fifth and sixth grade levels respectively. In Table IX on verbal scores, seven ranked on or below the 30th percentile, and on the non-verbal scores five ranked on or below the same percentile

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36. Thorndike and Hagen, op. cit., p. 135.

TABLE VIII

GRADE EQUIVALENTS OF THE "C" GROUP
FROM THE LORGE-THORNDIKE INTELLIGENCE TEST SCORES*

IN THE FIFTH GRADE

Grade	Verbal						Non-verbal					
	Boys		Girls		Total		Boys		Girls		Total	
	f	cf	f	cf	f	cf	f	cf	f	cf	f	cf
5th							1	3			1	7
4th			3	4	3	7			1	4	1	6
3rd	3	3	1	1	4	4	1	2	3	3	4	5
2nd							1	1			1	1

IN THE SIXTH GRADE

Grade	Verbal						Non-verbal					
	Boys		Girls		Total		Boys		Girls		Total	
	f	cf	f	cf	f	cf	f	cf	f	cf	f	cf
10th							1	4			1	7
9th												
8th												
7th	1	4			1	7						
6th			2	3	2	6						
5th	2	3			2	4						
4th	1	1			1	2	3	3	2	3	5	6
3rd			1	1	1	1			1	1	1	1
2nd												
1st												

* One did not take the tests.

TABLE IX

PERCENTILE RANK AT THE FIFTH GRADE LEVEL FROM LORGE-THORNDIKE INTELLIGENCE TEST SCORES

Percentile Rank	Verbal						Non-verbal					
	Boys		Girls		Total		Boys		Girls		Total	
	f	cf	f	cf	f	cf	f	cf	f	cf	f	cf
91-100	1	14	1	21	2	35	1	14			1	35
81-90	3	13	4	20	7	33	4	13	3	21	7	34
71-80			3	16	3	26	2	9	2	18	4	27
61-70	2	10	7	13	9	23	1	7	1	16	2	23
51-60	2	8			2	14	2	6	3	15	5	21
41-50	1	6	1	6	2	12			5	12	5	16
31-40			3	5	3	10	2	4	4	7	6	11
21-30	4	5	2	2	6	7			3	3	3	5
11-20	1	1			1	1	2	2			2	2
1-10												

TABLE X

PERCENTILE RANK AT THE SIXTH GRADE LEVEL FROM LORGE-THORNDIKE INTELLIGENCE TEST SCORES

Percentile Rank	Verbal						Non-verbal					
	Boys		Girls		Total		Boys		Girls		Total	
	f	cf	f	cf	f	cf	f	cf	f	cf	f	cf
91-100	20	62	17	75	37	137	19	62	22	75	41	137
81-90	10	42	15	58	25	100	8	43	13	53	21	96
71-80	5	32	9	43	14	75	2	35	6	40	8	75
61-70			9	34	9	61	8	33	9	34	17	67
51-60	5	27	11	25	16	52	5	25	7	25	12	50
41-50	3	22	2	14	5	36	7	20	6	18	13	38
31-40	5	19	3	12	8	31	4	13	3	12	7	25
21-30	8	14	6	9	14	23	2	9	7	9	9	18
11-20	3	6	2	3	5	9	7	7	1	2	8	9
1-10	3	3	1	1	4	4			1	1	1	1

at the fifth grade level. In Table X on the verbal scores, twenty-three ranked on or below the 30th percentile, and on the non-verbal scores eighteen ranked at the same percentile at the sixth grade level. The implications are that the number of students who ranked below the 30th percentile in these two tables were generally underachievers at both grade levels.

IV. CALIFORNIA TESTS OF MENTAL MATURITY

In Table XI, the distribution of language, non-language, and total IQ's of the experimental group were represented from the California Test of Mental Maturity at the seventh grade level. The seven students with total IQ's on or below 90 imply underachievement, and the twenty-four students with total IQ's between 91-100 might imply difficulties of achievement. An IQ might vary some from one year to the next. These students with IQ's between 91 and 100 might be achieving, but they would be expected to encounter difficulty.

In Table XII, IQ's similar to those in Table XI were given for the "C" students. One boy with a total IQ between 91 and 100, and thirteen with a total IQ on or below 90 were performing at the seventh grade level. This might have been expected since these students at this level had been placed in the "C" program as already described.

TABLE XI

DISTRIBUTION OF IQ'S OF THE EXPERIMENTAL GROUP AT THE SEVENTH GRADE LEVEL FROM THE CALIFORNIA TEST OF MENTAL MATURITY TEST SCORES

Range of IQ's	Language IQ				Non-language IQ				Total IQ's IQ			
	Boys		Girls		Boys		Girls		Boys		Girls	
	f	cf	f	cf	f	cf	f	cf	f	cf	f	cf
151-160					1	87						
141-150	2	87	1	98	3	86			2	87	1	98
131-140	4	85	10	97	6	83	5	98	7	85	2	97
121-130	14	81	14	87	8	77	8	93	9	78	14	95
111-120	15	67	23	73	28	69	20	85	16	69	26	81
101-110	17	52	25	50	13	41	29	65	24	53	24	55
91-100	18	35	16	25	18	28	19	36	17	29	24	31
81-90	13	17	7	9	8	10	16	17	10	12	6	7
71-80	4	4	2	2	1	2	1	1	2	2	1	1
61-70					1	1						

TABLE XII

DISTRIBUTION OF IQ'S OF THE "C" GROUP AT THE SEVENTH GRADE LEVEL FROM THE CALIFORNIA TEST OF MENTAL MATURITY TEST SCORES

Range of IQ's	Language IQ				Non-language IQ				Total IQ			
	Boys		Girls		Boys		Girls		Boys		Girls	
	f	cf	f	cf	f	cf	f	cf	f	cf	f	cf
91-100	1	7	2	7	4	7	1	7	1	7		
81-90	2	6	2	5	2	3	2	6	5	6	4	7
71-80	3	4	3	3	1	1	1	4	1	1	2	3
61-70	1	1					3	3			1	1

V. SUMMARY

In this large urban high school the types of students in each program were explained. The strengths and weaknesses in relying on IQ's to interpret ability were shown. Results of the scores from the Lorge-Thorndike Tests and the California Tests of Mental Maturity were tabulated. As shown by the IQ's and percentile ranks of these tests, this eighth grade of a large urban high school was a challenge. Those pupils with IQ's below 90 presented a problem for the teacher. Those with IQ's between 90 and 100 also might present similar problems, but if they put forth more effort, they would most likely reach a higher level of achievement. The "C" program as might be expected showed few students with IQ's above 90. An implication for underachievement was represented in the thirty-three achieving below grade level in the sixth grade on the Lorge-Thorndike Tests. In Table VII the 34.3 per cent in the fifth grade and the 24.3 per cent in the sixth grade performing below grade level included many underachievers. The "C" group scores in Table VIII were as expected from a slow-learner group at that level.

As shown in Tables IX and X, those students with IQ's ranking below the 30th percentile might present possible causes for underachievement. From the California Tests of Mental Maturity those pupils with total IQ's below 90 and the

twenty-four pupils with total IQ's between 91-100 might imply difficulties in achievement. In Chapter III, therefore, the possibilities for much underachievement have been evidenced.

CHAPTER IV

TESTS USED FOR SKILLS, INTERESTS, AND APTITUDES

I. SCIENCE RESEARCH ASSOCIATES TESTS

The first achievement tests given to this group were the Science Research Associates Tests called the SRA Achievement Series. These showed the grade equivalent of members of the group, and the percentile rank of the group as compared with national norms in the following areas: work study skills such as the use of references and charts; the reading comprehension and vocabulary skills; language arts skills such as spelling, capitalization and grammar; arithmetic skills such as reasoning, understanding arithmetical concepts, actual computation; and a combination of all groups. In the SRA Tests, Table XIII gave the grade equivalents of members of the group in work study and other skills in academic subjects. A combination of the grade equivalents of the students of the group was also shown in Table XIII. Since the test was given in the spring of the year, the group showed have been working some where between the sixth month and the ninth month of the fifth grade.

Table XIII was condensed to show only those achieving below grade level in the SRA Achievement Tests in the following:

TABLE XIII

GRADE EQUIVALENTS OF THE STUDENTS IN THE FIFTH GRADE FROM THE SCIENCE RESEARCH ASSOCIATE TEST SCORES

Grades	Type of Work-Study Skills							
	References				Charts			
	Boys		Girls		Boys		Girls	
	f	cf	f	cf	f	cf	f	cf
8.6-8.9	3	67	3	85	1	69	4	85
8.0-8.5	2	64	6	82	12	68	11	81
7.6-7.9	3	62	9	76	4	56	8	70
7.0-7.5	14	59	11	67	10	52	7	62
6.6-6.9	5	45	8	56	3	42	5	55
6.0-6.5	15	40	20	48	9	39	15	50
5.6-5.9	4	25	7	28	4	30	7	35
5.0-5.5	11	21	13	21	5	26	9	28
4.6-4.9	4	10	4	8	9	21	10	19
4.0-4.5	3	6	4	4	10	12	6	9
3rd	2	3			1	2	3	3
2nd	1	1			1	1		

Grades	Reading							
	Comprehension				Vocabulary			
	Boys		Girls		Boys		Girls	
	f	cf	f	cf	f	cf	f	cf
8.6-6.9	4	69	3	85	2	69	3	85
8.0-8.5	8	65	7	82	3	67	4	82
7.7-7.9	1	57	4	75	2	64	3	78
7.0-7.5	6	56	5	71	9	62	11	75
6.6-6.9	4	50	9	66	5	53	8	64
6.0-6.5	10	46	12	57	14	48	13	56
5.6-5.9	8	36	7	45	2	34	11	43
5.0-5.5	7	28	14	38	8	32	11	32
4.6-4.9	5	21	9	24	4	24	6	21
4.0-4.5	7	16	9	15	9	20	10	15
3rd	7	9	6	6	10	11	5	5
2nd	2	2			1	1		

TABLE XIII (cont'd)

GRADE EQUIVALENTS OF THE STUDENTS IN THE FIFTH GRADE FROM THE SCIENCE RESEARCH ASSOCIATES TEST SCORES

Grade	Language Arts											
	Spelling				Capitalization Punctuation				Grammer Usage			
	Boys		Girls		Boys		Girls		Boys		Girls	
	f	cf	f	cf	f	cf	f	cf	f	cf	f	cf
8.6-8.9	4	69	15	85	3	69	9	85	1	69	5	85
8.0-8.5	11	65	15	70	5	66	9	76	3	68	5	80
7.6-7.9			3	55	8	61	11	67	5	65	11	75
7.0-7.5	20	54	30	52	9	53	6	56	12	60	24	64
6.6-6.9	1	34	2	22	6	44	15	50	2	48	3	40
6.0-6.5	10	33	5	20	5	38	11	35	7	46	14	37
5.6-5.9			2	15	9	33	6	24	3	39	3	23
5.0-5.5	4	23	7	13	9	24	7	18	17	36	11	20
4.6-4.9	4	19	2	6	5	15	4	11	5	19	2	9
4.0-4.5	5	15	2	4	4	10	3	7	10	14	7	7
3rd	5	10	1	2	6	6	4	4	4	4		
2nd	5	5	1	1								

Grade	Arithmetic Skills											
	Reasoning				Concepts				Computation			
	Boys		Girls		Boys		Girls		Boys		Girls	
	f	cf	f	cf	f	cf	f	cf	f	cf	f	cf
8.6-8.9	2	69	4	85	7	69	8	85	1	69		
8.0-8.5	3	67	5	81	12	62	17	77	2	68	2	85
7.6-7.9			2	76	8	50	8	60	9	66	4	83
7.0-7.5	9	64	9	74	6	42	6	52	7	57	14	79
6.6-6.9	8	55	8	65	7	36	10	46	11	50	14	65
6.0-6.5	15	47	16	57	13	29	12	36	18	39	23	51
5.6-5.9	12	32	17	41	8	16	7	24	8	21	11	28
5.0-5.5	4	20	10	24	3	8	4	17	8	13	10	17
4.6-4.9	10	16	5	14	2	5	4	13	5	5	5	7
4.0-4.5	2	6	3	9	2	3	5	9			2	2
3rd	3	4	5	6			3	4				
2nd	1	1	1	1	1	1	1	1				

TABLE XIII (cont'd)

GRADE EQUIVALENTS OF THE STUDENTS IN THE FIFTH GRADE FROM THE SCIENCE RESEARCH ASSOCIATES TEST SCORES

Grade	Combination					
	Boys		Girls		Total	
	f	cf	f	cf	f	cf
8.6-8.9	3	69	2	85	5	153
8.0-8.5	6	66	8	83	14	149
7.6-7.9	7	60	8	75	15	135
7.0-7.5	4	53	16	67	20	120
6.6-6.9	12	49	8	51	20	100
6.0-6.5	9	37	18	43	27	80
5.6-5.9	9	28	11	25	20	53
5.0-5.5	10	19	4	14	14	33
4.6-4.9	5	9	7	10	12	19
4.0-4.5	4	4	3	3	7	7
3rd						
2nd						

	References	Charts	Reading Comprehension	Reading Vocabulary	Spelling
Boys	21	26	28	32	23
Girls	21	28	38	32	13
Totals	42	54	66	64	36

	Language Arts		Arithmetic Skills			
	Cap. and Punct.	Grammar	Reason	Concepts	Computation	Comb.
Boys	24	36	20	8	13	19
Girls	18	20	24	17	17	14
Totals	42	56	44	25	30	33

The large number of students achieving below grade level in the above skills might reveal the cause of potential underachievement in reading, language arts, and arithmetic, in this or in later school grades.

Table XIV showed the grade equivalents for the same skills as Table XIII, in the SRA Achievement Tests, but for the "C" group of students. A few students were shown working above the fifth grade level, at which this test was given. In the combined scores as shown in Table XIV only two were performing above grade level, four on grade level, and seven below grade level. These "C" students at this level were in the regular program. Those pupils achieving below grade level showed a cause of underachievement which placed them in the "C" program at the seventh grade level.

TABLE XIV

GRADE EQUIVALENTS OF "C" STUDENTS IN THE FIFTH GRADE FROM THE SCIENCE RESEARCH ASSOCIATES TEST SCORES*

Grade	Type of Work Study Skills: Reference Boys f	Reference Boys cf	Reference Girls f	Reference Girls cf	Charts Boys f	Charts Boys cf	Charts Girls f	Charts Girls cf	Reading: Comprehension Boys f	Comprehension Boys cf	Comprehension Girls f	Comprehension Girls cf	Vocabulary Boys f	Vocabulary Boys cf	Vocabulary Girls f	Vocabulary Girls cf
8th					1	6										
7th	1	6	1	7			1	7							1	7
6th	1	5	2	6	1	5	1	6			1	7	1	6		
5th	1	4	1	4	1	4	2	5	2	6	2	6			1	6
4th	2	3	2	3	2	3	1	3	2	4	2	4	2	5	3	5
3rd	1	1	1	1	1	1	2	2	2	2	2	2	2	3	1	2
2nd													1	1	1	1

Grade	Language Arts: Spelling Boys f	Spelling Boys cf	Spelling Girls f	Spelling Girls cf	Capitalization and Punctuation Boys f	Capitalization and Punctuation Boys cf	Capitalization and Punctuation Girls f	Capitalization and Punctuation Girls cf	Grammar Usage Boys f	Grammar Usage Boys cf	Grammar Usage Girls f	Grammar Usage Girls cf
8th			1	7					1	6		
7th			1	6			1	7				
6th			2	5			2	6				
5th			1	3	1	6					1	7
4th	2	6	1	2	1	5	2	4	1	5	4	6
3rd	2	4	1	1	4	4	1	2	3	4	1	2
2nd	2	2					1	1	1	1	1	1

* Two students did not take the tests.

TABLE XIV (cont'd)

GRADE EQUIVALENTS OF "C" STUDENTS IN THE FIFTH GRADE FROM THE SCIENCE RESEARCH ASSOCIATE TEST SCORES

Grades	Arithmetic Skills											
	Reasoning				Concepts				Computation			
	Boys		Girls		Boys		Girls		Boys		Girls	
	f	cf	f	cf	f	cf	f	cf	f	cf	f	cf
7							1	7				
6					2	6	1	6	2	6	2	7
5	1	6	3	7	2	4	1	5	3	4	4	5
4	5	5			2	2	2	4	1	1	1	1
3			3	4			2	2				
2			1	1								

Grades	Combination				Total	
	Boys		Girls			
	f	cf	f	cf	f	cf
7	1	6			1	13
6	1	5			1	12
5			4	7	4	11
4	3	4	2	3	5	7
3	1	1	1	1	2	2

Table XV revealed the percentile rank of the students in the same skills as listed previously from the SRA Achievement Tests. This Table also gave the percentile rank of the students for the combination scores from the same tests.

The percentile ranks should be interpreted not as standards to be met but as aids in evaluation. Those students, therefore, achieving below the 30th percentile in the skills in academic subjects might be potential underachievers.[37] Condensed to show separately those students working at or below the 30th percentile, Table XV revealed the following facts:

	References	Charts	Reading Comprehension	Reading Vocabulary	Spelling
Boys	16	17	25	27	23
Girls	11	16	24	20	7
Totals	27	33	49	47	30

	Language Arts		Arithmetic Skills			
	Cap. and Punct.	Grammar	Reason	Concepts	Computation	Comb.
Boys	15	24	24	8	14	9
Girls	11	7	18	12	13	9
Totals	26	31	42	20	27	18

37. Adams, Georgia S., and Torgerson, Theodore L., Measurement and Evaluation, (New York: The Dryden Press, 1956), p. 60.

TABLE XV

PERCENTILE RANK OF THE STUDENTS IN THE FIFTH GRADE FROM THE SCIENCE RESEARCH ASSOCIATES TEST SCORES

Percentile Rank	Type of Work Study Skills							
	References				Charts			
	Boys		Girls		Boys		Girls	
	f	cf	f	cf	f	cf	f	cf
91-100	8	69	13	85	5	69	10	85
81-90	5	61	12	72	11	64	8	75
71-80	7	56	8	60	10	53	12	67
61-70	11	49	12	52	7	43	12	55
51-60	8	38	11	40	6	36	9	43
41-50	4	30	6	29	4	30	9	34
31-40	10	26	12	23	9	26	9	25
21-30	6	16	5	11	4	17	7	16
11-20	5	10	4	6	10	13	6	9
1-10	5	5	2	2	3	3	3	3

Percentile Rank	Reading							
	Comprehension				Vocabulary			
	Boys		Girls		Boys		Girls	
	f	cf	f	cf	f	cf	f	cf
91-100	5	69	4	85	5	69	9	85
81-90	10	64	10	81	8	64	6	76
71-80	8	54	7	71	6	56	8	70
61-70	6	46	10	64	5	50	11	62
51-60	4	40	7	54	12	45	12	51
41-50	5	36	7	47	3	33	14	39
31-40	6	31	16	40	3	30	5	25
21-30	5	25	8	24	5	27	5	20
11-20	9	20	11	16	12	22	10	15
1-10	11	11	5	5	10	10	5	5

TABLE XV (cont'd)

PERCENTILE RANK OF THE STUDENTS IN THE FIFTH GRADE FROM THE SCIENCE RESEARCH ASSOCIATE TEST SCORES

Percentile Rank	Language Arts: Spelling				Language Arts: Capitalization and Punctuation				Language Arts: Grammar Usage			
	Boys		Girls		Boys		Girls		Boys		Girls	
	f	cf	f	cf	f	cf	f	cf	f	cf	f	cf
91-100	7	69	23	85	10	69	14	85	2	69	10	85
81-90	10	62	14	62	3	59	9	71	10	67	17	75
71-80	8	52	9	48	11	56	14	62	8	57	18	58
61-70	9	44	17	39	5	45	10	48	2	49	8	40
51-60	10	35	6	22	7	40	13	38	6	47	6	32
41-50	2	25	8	16	10	33	7	25	12	41	9	26
31-40			1	8	8	23	7	18	5	29	10	17
21-30	4	23	2	7	5	15	4	11	8	24	5	7
11-20	6	19	2	5	6	10	5	7	10	16	1	2
1-10	13	13	3	3	4	4	2	2	6	6	1	1

Percentile Rank	Arithmetic Skills: Reasoning				Arithmetic Skills: Concepts				Arithmetic Skills: Computation			
	Boys		Girls		Boys		Girls		Boys		Girls	
	f	cf	f	cf	f	cf	f	cf	f	cf	f	cf
91-100	6	69	7	85	13	69	12	85	10	69	14	85
81-90	5	63	7	78	18	56	21	73	7	59	5	71
71-80	4	58	10	71	9	38	9	52	5	52	16	66
61-70	8	54	14	61	3	29	15	43	6	47	8	50
51-60	11	46	8	47	6	26	6	28	9	41	12	42
41-50	6	35	12	39	9	20	5	22	8	32	10	30
31-40	5	29	9	27	3	11	5	17	10	24	7	20
21-30	13	24	9	18	3	8	4	12	6	14	5	13
11-20	9	11	4	9	3	5	4	8	5	8	2	8
1-10	2	2	5	5	2	2	4	4	3	3	6	6

TABLE XV (cont'd)

PERCENTILE RANK OF THE STUDENTS IN THE FIFTH GRADE FROM THE SCIENCE RESEARCH ASSOCIATES TEST SCORES

Percentile Rank	Combination				Total	
	Boys		Girls			
	f	cf	f	cf	f	cf
91-100	6	69	9	85	15	154
81-90	11	63	13	76	24	139
71-80	5	52	15	63	20	115
61-70	3	47	10	48	13	95
51-60	7	44	14	38	21	82
41-50	14	37	8	24	22	61
31-40	14	23	7	16	21	39
21-30	2	9	3	9	5	18
11-20	5	7	4	6	9	13
1-10	2	2	2	2	4	4

Table XVI gave the percentile ranks for the same skills from the SRA Achievement Tests as did Table XV except they are for the "C" students. From the Table XVI, for the "C" group, the most important fact revealed was that all thirteen "C" students were achieving at or below the 30th percentile in reading comprehension. This fact might reveal a possible cause for underachievement of the group in other areas. In the Combination Scores for Table XVI no boy achieved above the 30th percentile, but five of the girls achieved between the 30th and 50th percentiles.

At the elementary level, the norm most widely used was the grade equivalent. Adams and Torgerson believed that[38]

> By means of such norms, student scores on each section of an achievement test can be interpreted by comparing them with the average scores attained by students of various grade levels in the norming population.

These norms enabled the teacher to decide whether a student beginning the seventh grade, (grade equivalent 7.0) or as well in reading vocabulary as the average student completing the sixth grade (grade equivalent 6.9). Adams and Torgerson also pointed out the use of the grade equivalents in the following quotations:[39]

> By means of grade equivalents, the teacher can translate a student's tests scores into comparable

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38. Ibid., p. 54.

39. Ibid., p. 54.

TABLE XVI

PERCENTILE RANK OF THE "C" STUDENTS IN THE FIFTH GRADE FROM THE SCIENCE RESEARCH ASSOCIATES TEST SCORES

Percentile Rank	Type of Work Study Skills: References Boys f	cf	References Girls f	cf	Charts Boys f	cf	Charts Girls f	cf
91-100								
81-90								
71-80					1	6		
61-70			1	7			2	7
51-60	1	6	1	6				
41-50							1	5
31-40	2	5	2	5	1	5	1	4
21-30			1	3	1	4	1	3
11-20	2	3	1	2	2	3		
1-10	1	1	1	1	1	1	2	2

Percentile Rank	Reading: Comprehension Boys f	cf	Comprehension Girls f	cf	Vocabulary Boys f	cf	Vocabulary Girls f	cf
91-100								
81-90								
71-80								
61-70								
51-60							1	7
41-50							1	6
31-40								
21-30	1	6	1	7	2	6	1	5
11-20	2	5	2	6	1	4	3	4
1-10	3	3	4	4	3	3	1	1

TABLE XVI (cont'd)

PERCENTILE RANK OF THE "C" STUDENTS IN THE FIFTH GRADE FROM THE SCIENCE RESEARCH ASSOCIATES TEST SCORES

Percentile Rank	Language Arts											
	Spelling				Capitalization and Punctuation				Grammar Usage			
	Boys		Girls		Boys		Girls		Boys		Girls	
	f	cf	f	cf	f	cf	f	cf	f	cf	f	cf
91-100			1	7								
81-90												
71-80												
61-70			1	6								
51-60			2	5			2	7				
41-50			1	3			1	5				
31-40			1	2			1	4			2	7
21-30					1	6	2	3	4	6	1	5
11-20	2	6			3	5			1	2	2	4
1-10	4	4	1	1	2	2	1	1	1	1	2	2

Percentile Rank	Arithmetic Skills											
	Reasoning				Concepts				Computation			
	Boys		Girls		Boys		Girls		Boys		Girls	
	f	cf	f	cf	f	cf	f	cf	f	cf	f	cf
91-100												
81-90											1	7
71-80							2	7				
61-70												
51-60			1	7	2	6						
41-50			1	6			1	5			2	6
31-40			1	5					1	6	2	4
21-30	1	6	1	4	4	4	1	4	1	5	1	2
11-20	5	5	3	3			2	3	3	4	1	1
1-10							1	1	1	1		

TABLE XVI (cont'd)

PERCENTILE RANK OF THE "C" STUDENTS IN THE FIFTH GRADE FROM THE SCIENCE RESEARCH ASSOCIATES TEST SCORES

Percentile Rank	Combination				Totals	
	Boys		Girls			
	f	cf	f	cf	f	cf
91-100						
81-90						
71-80						
61-70						
51-60						
41-50			1	7	1	13
31-40			4	6	4	12
21-30	2	6			2	8
11-20	3	4			3	6
1-10	1	1	2	2	3	3

> units and thus interpret his relative achievement in two or more areas. He records a series of grade equivalents in the student's cumulative record; he compares them with grade equivalents recorded for tests administered in previous grades as a basis for judging the student's progress; he uses them as a basis for interpreting to parents the student's profile of strengths and weaknesses in achievement.

The grade equivalent was most applicable only for skill subjects in which continued instruction is given.[40]

II. IOWA SILENT READING TESTS

The Iowa Silent Reading Tests were given to this group at the seventh grade level. The grade equivalents and percentile ranks for these tests were computed, as was also a total for the entire group. Table XVII presented the grade equivalents for eight reading skills and the total grade from the Iowa Silent Reading Test Scores. The cumulative frequencies at the sixth grade level in Table XVII represented the number of students working below the seventh grade level (at which level the test was administered) in the following reading skills:

Reading Skills	Number of Students
Rate	57
Comprehension	58
Directed Reading	56
Word Meaning	52
Paragraph Comprehension	81
Sentence Meaning	69
Alphabetizing	55
Index	47
Total	54

40. Ibid., p. 57.

TABLE XVII

GRADE EQUIVALENTS OF THE STUDENTS IN THE SEVENTH GRADE FROM THE IOWA SILENT READING TEST SCORES

Grade Level	Rate		Comprehension		Directed Reading		Word Meaning		Paragraph Comp.	
	f	cf	f	cf	f	cf	f	cf	f	cf
12	49	186	19	186	40	186	12	186	29	186
11	13	137	19	167	2	146	5	174	13	157
10	12	124			9	144	15	169	1	144
9	7	112	28	148	15	135	22	154	11	143
8	20	105	26	120	30	120	36	132	25	132
7	28	85	36	94	34	90	44	96	26	107
6	9	57	27	58	24	56	33	52	47	81
5	13	48	13	31	22	32	14	19	10	34
4	9	35	7	18	4	10	2	5	11	24
3	17	26	10	11	2	6			9	13
2	9	9	1	1	2	4	3	3	3	4
1					2	2			1	1

Grade Level	Sentence meaning		Alphabetizing		Index		Total	
	f	cf	f	cf	f	cf	f	cf
12	17	186	82	186	43	186	22	186
11	1	169	5	104			9	164
10	16	168	1	99	34	143	15	155
9	7	152	13	98			12	140
8	25	145	17	85	41	109	32	128
7	51	120	13	68	21	68	42	96
6	27	69	15	55	18	47	31	54
5	23	42	17	40	21	29	17	23
4	13	19	5	23	4	8	3	6
3	1	6	9	18	2	4	1	3
2	3	5	8	9	2	2	2	2
1	2	2	1	1				

When the total grade 54 was used as a percentage of the 186 taking the test 29 per cent were underachieving in a total reading score. Six of the eight other skills show an even larger per cent of the students studied were lacking in basic reading skills.

Another way of showing possible underachievement in reading on the seventh grade level is to give the percentile ranks of the students in reading skills from the Iowa Silent Reading Test as tabulated in Table XVIII. The number of students working at or below the 30th percentile shown in Table XVIII is presented separately as follows:

Reading Skills	Number of Students at or Below 30th Percentile
Rate	47
Comprehension	53
Directed Reading	56
Word Meaning	42
Paragraph Comprehension	41
Sentence Meaning	57
Alphabetizing	40
Use of Index	43
Total	45

The total number of 45 students represented 24.1 per cent of the total 186 students taking the tests. These facts would show potential underachievement.

Table XIX showed the grade equivalents for the reading skills of the "C" group on Iowa Silent Reading Tests at the seventh grade level. On the Total Score only two were performing on grade level and none were performing above. Table XX presented the percentile ranks for the same scores

TABLE XVIII

PERCENTILE RANK OF THE STUDENTS IN THE SEVENTH GRADE FROM THE IOWA SILENT READING TEST SCORE

Percentile Rank	Rate		Comprehension		Directed Reading		Word Meaning		Paragraph Comp.	
	f	cf	f	cf	f	cf	f	cf	f	cf
91-100	26	186	9	186	14	186	11	186	9	186
81-90	26	160	31	177	14	172	25	175	21	177
71-80	13	134	29	146	25	158	18	150	15	156
61-70	17	121	25	117	28	133	18	132	23	141
51-60	16	104	24	92	18	105	30	114	15	118
41-50	31	88			18	87	16	84	25	103
31-40	10	57	15	68	13	69	26	68	37	78
21-30	12	47	25	53	19	56	19	42	13	41
11-20	8	35	12	28	18	37	13	23	6	28
1-10	27	27	16	16	19	19	10	10	22	22

Percentile Rank	Sentence meaning		Alphabetizing		Index		Total	
	f	cf	f	cf	f	cf	f	cf
91-100	16	186	30	186	45	186	25	186
81-90	18	170	35	156			22	161
71-80	8	152	20	121	35	141	9	139
61-70	13	144	14	101	24	106	20	130
51-60	29	131	19	87	16	82	19	110
41-50	13	102	13	68	22	66	24	91
31-40	32	89	15	55	1	44	22	67
21-30	26	57	16	40	15	43	15	45
11-20	13	31	7	24	21	28	21	30
1-10	18	18	17	17	7	7	9	9

TABLE XIX

GRADE EQUIVALENTS FOR THE "C" GROUP IN THE SEVENTH GRADE FROM THE IOWA SILENT READING TEST SCORES

Grade Level	Rate f	Rate cf	Compre. f	Compre. cf	Dir. Read. f	Dir. Read. cf	Word Mean. f	Word Mean. cf	Para. Comp. f	Para. Comp. cf	Sen. Mean. f	Sen. Mean. cf	Alpha. f	Alpha. cf	Use Index f	Use Index cf	Total f	Total cf
12													1	15				
11	1	15											3	14	1	15		
10															1	14		
9													2	11				
8			1	15	1	15	2	15	1	15	1	15	1	9	1	13		
7	2	14	2	14	1	14	1	13	1	14	3	14	1	8	2	12	2	15
6	1	12	2	12	4	13	5	12	2	13	1	11	1	7	4	10	3	13
5	1	11	2	10	4	9	4	7	4	11	5	10	1	6	2	6	7	10
4			2	8	3	5	3	3			3	5	1	5	4	4	3	3
3	5	10	3	6					3	7	1	2	3	4				
2	2	5	2	3	1	2			3	4	1	1	1	1				
1	3	3	1	1	1	1			1	1								

TABLE XX

PERCENTILE RANK OF "C" STUDENTS IN THE SEVENTH GRADE FROM THE IOWA SILENT READING TEST SCORES

Percentile Rank	Rate f	Rate cf	Compre. f	Compre. cf	Dir. Read. f	Dir. Read. cf	Word Mean. f	Word Mean. cf	Para. Comp. f	Para. Comp. cf	Sen. Mean. f	Sen. Mean. cf	Alpha. f	Alpha. cf	Use Index f	Use Index cf	Total f	Total cf
91-100													1	15				
81-90			1	15														
71-80	2	15									1	15	3	14	2	15		
61-70	1	13			1	15	2	15					2	11				
51-60							2	13					1	9	2	13	2	15
41-50	2	12					1	11			1	14	1	8	2	11		
31-40	1	10	3	14	2	14	1	10	1	15	4	13	2	7			2	13
21-30	1	9	2	11	2	12	1	9	3	14	2	9			3	9	2	11
11-20			3	9	5	10	3	8	4	11	3	7	1	5	3	6	3	9
1-10	8	8	6	6	5	5	5	5	7	7	4	4	4	4	3	3	6	6

of the "C" group in the same skills. Though two students rank above the 50th percentile, most of them are below. The scores might have led to their placement in the "C" group.

III. DIFFERENTIAL APTITUDE TESTS

The American high school has had a provision for differentiated curricula. The provision for such curricula was not enough to ensure the achievement of desired goals; students must be assisted in understanding their own interests and abilities in order to make the best choice from this curricula.[41] The following are given by Adam and Torgerson as useful guides to choosing experiences in which the student is most likely to be successful: "a student's marks, his achievement-tests scores, his experiences in extra-curricula and work-experience activities, the economic status of his family, and data from his cumulative record."[42] Aptitude tests can be of great value in aiding pupils in the tasks of self-appraisal and educational planning.

At the eighth grade level, the Differential Aptitude Tests were given to the group studied to ascertain their

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41. Ibid., p. 89.

42. Ibid.

general aptitude in certain areas such as verbal reasoning, numerical ability, abstract reasoning, space relations, mechanical reasoning, clerical speed and accuracy, language usage and general mental maturity. In Table XXI the percentile ranks for the students in these various areas were listed. Those students with aptitudes at or below the 30th percentile in the various areas of the DAT battery as shown in Table XXI were given separately as follows:

Area	Number of Students
Verbal Reasoning	64
Numerical Ability	79
Abstract Reasoning	45
Space Relations	33
Mechanical Reasoning	61
Clerical Speed and Accuracy	75
Spelling	49
Sentence Usage	48
Vr. and Na.	67

The sixty-seven showing a general mental maturity at the 30th percentile represented 31.6 per cent of the 212 taking the test.

IV. OCCUPATIONAL INTEREST INVENTORY

The occupational Interest Inventory was given to this group at the eighth grade level and the percentile ranks were tabulated according to fields of interest, types of interest and levels of interest in Table XXII. Under types of interest, at or below the 30th percentile were the following facts:

TABLE XXI

PERCENTILE RANKS FOR THE DIFFERENTIAL APTITUDE TEST SCORES AT THE EIGHTH GRADE LEVEL

Percentile Rank	Verbal cf	Numerical cf	Abst. cf	Space cf	Mech. cf	Cler. cf	Sp. cf	Sen. cf	Vr. and Na. cf
91-100	212	212	212	212	212	212	212	212	212*
81-90	190	203	185	192	199	200	203	196	200
71-80	172	193	167	175	184	190	193	85	192
61-70	151	177	131	142	152	168	156	149	169
51-60	137	163	121	126	138	160	142	141	159
41-50	128	139	96	93	115	140	122	109	138
31-40	85	97	64	55	84	92	76	68	95
21-30	64	79	45	33	61	75	49	48	67
11-20	35	47	16	15	41	32	28	24	35
1-10	29	36	8	12	24	26	23	16	29

* 27 did not take the test.

TABLE XXII

PERCENTILE RANKS FOR THE FIELDS OF INTEREST OF THE OCCUPATIONAL INTEREST INVENTORY AT THE EIGHTH GRADE LEVEL

Percentile Range	Fields of Interests: Per. Soc. cf	Nat. cf	Mech. cf	Bus. cf	Arith-metic cf	Science cf
91-100	212	212	212	212	212	212*
81-90	187	207	202	203	105	206
71-80	177	192	200	181	201	190
61-70	151	181	185	166	181	174
51-60	134	155	179	145	170	148
41-50	103	138	168	124	157	119
31-40	76	110	132	91	118	94
21-30	58	76	117	57	96	71
11-20	23	56	88	29	80	49
1-10	11	39	55	16	59	29

Percentile Range	Types of Interests: Verbal cf	Manip. cf	Composite cf	Levels of Interest cf
91-100	212	212	212	212
81-90	207	205	198	188
71-80	189	195	176	156
61-70	162	187	144	143
51-60	135	168	116	124
41-50	104	136	95	93
31-40	69	79	64	87
21-30	34	35	36	60
11-20	15	20	15	46
1-10	4	9	10	36

* 27 did not take the test.

	Number of Students
Verbal	34
Manipulative	35
Composite	36

Sixty were listed at the 30th percentile in levels of interest. Thorndike and Hagen stated of the Occupational Interest Inventory the following:

> Reliability data tend to indicate that this instrument is not suitable for use with individuals. At the present time, it would probably be wise to consider the inventory to be an experimental instrument and not suitable for use in counseling individual students.[43]

In Chapter IV the grade equivalents and the percentile ranks for the scores for the Science Research Associate Tests, Achievement Series, administered at the fifth grade level were given for both the main and the certificate groups. The grade equivalents and the percentile ranks for the scores for the Iowa Silent Tests for reading skills administered at the sixth grade level, were also given for the main and certificate groups.

For the Differential Aptitude Test Scores, found at the eighth grade level, percentile ranks were given for nine special areas, and for a combination of verbal and numerical reasoning.

The percentile ranks for the Fields of Interests, Types of Interest and Level of Interest of the scores of the Occupational Interest Inventory Tests given at the eighth

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43. Thorndike and Hagen, op. cit., p. 587.

grade level were also listed. It was concluded that the low level of interest as indicated on the Occupational Interest Inventory of some of the group might represent one of the reasons for underachievement.

All these tests have presented scores for some of the group which might be a basis for predicting underachievement.

CHAPTER V

OTHER FACTORS IN UNDERACHIEVEMENT

I. HEALTH, EMOTIONAL AND PERSONALITY HABITS

When data were being evaluated to find possible causes of a student's underachievement, it appeared necessary to note those factors which pertained to health, emotional problems, and personality habits, which might have influenced his learning. The state of a student's health has been considered an important factor in underachievement. DeHaan and Kough stated:

> Whether a pupil's physical disability is severe or minor, it will need detection before he can be given the kind of help and treatment he needs in order that the state of his health might not prove a handicap.[44]

The health and physical difficulties of the experimental group were listed from the cumulative folder. These difficulties ranged from fairly simple disorders to more complex illnesses, requiring a longer time from which to recover. These were listed according to frequency as follows:

1. Emotional disorders..... 24
2. Nervous disorders..... 16
3. Speech defects..... 16
4. Need for eye glasses..... 6
5. Frequent colds..... 6
6. Asthma..... 5
7. Dental problems..... 4

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44. DeHaan and Kough, op. cit., p. 78.

8. Ear infections..... 3
9. Throat infections..... 3
10. Allergies..... 2
11. Strep infections..... 2
12. Obesity..... 2

There was one case of each of the following physical difficulties:

1. Poor eyesight
2. Partially blind
3. Near sighted
4. Slightly impaired hearing
5. Deafness in one ear
6. Sinus
7. Fracture of the leg
8. Fracture of the cranium
9. Fracture of the arm
10. Thyroid insufficiency
11. Bulbar polio
12. Poor coordination
13. Knee injury
14. Pneumonia
15. Severe case of Measles
16. Stomach ulcers
17. Back injury
18. Severe accident
19. Low blood pressure
20. Heart murmur
21. Kidney infections
22. Liver disorder
23. Perthes disease
24. Spinal meningitis
25. Laceration of the foot
26. Physchological pain
27. Teenage hypochrondriac
28. Epiletic fits
29. Aphaxia (inability to use the tongue)
30. Discoloration of the face and body
31. Osgood Schaltor's disease

This made a total of 120 handicaps.

Thirty-five students had a poor attendance record. Ten of these had absences attributable to a long spell of illness from one month to one year. Four students were

listed as being chronically ill with colds, minor stomach disorders and the like. The remainder of the group had a good attendance record with no more than one or two absences during any school year. Many of the absences were usually caused by illness, but other than the ten long illnesses and the four chronic cases, no record was given to distinguish between those absences caused by minor illnesses or by other reasons such as imaginery illnesses and truancies.

Personality habits have affected achievement, and many of them caused illnesses and absences. Torrance gives the following in regard to mental health and personality:

> Parents want their children to enjoy good mental health. To help them avoid mental breakdowns, to help them develop their personalities in a healthy manner, are important concerns to any parent.[45]

Some of these habits more frequently found by teachers among the experimental group were as follows:

1.	Inattention	44
2.	Laziness, waste of time, and poor work habits	40
3.	Lack of motivation	37
4.	Work not up to capacity	36
5.	Slow learners	35
6.	Deficiency in fundamentals	35
7.	Timidity	33
8.	Feeling of inferiority	31
9.	Immaturity	29
10.	Sensitivity	22
11.	Deficiency in reading	21
12.	Agitation	15
13.	Nosiness	15
14.	Truancies	13

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45. Torrance, op. cit., p. 44.

15. Desire for attention.....12
16. Lack of self-control.....10
17. Feeling of rejection..... 4
18. Feeling of overconfidence..... 4

This made a total of four hundred thirty-six different instances of undesirable habits.

In order to obtain these statistics for the personality habits, the student's entire academic and personality record from the first through the eighth grades was studied, and an attempt was made to pick out the most general characteristics of each student. In this analysis two personality traits most frequently mentioned by teachers were selected as the major problem of each pupil. The words of the teacher in describing the student were used, and if a characteristic appeared for one year and was not generally typical of the student, it was not listed.

II. HEREDITARY AND ENVIRONMENTAL INFLUENCES

Many of these personality habits might have originated from parental attitudes towards the students, and their unwillingness to cooperate with the school and the teacher. Poor home environment, apathy of the parents, and lack of parental cooperation with the school were listed for at least fourteen students. Forty-nine parents were listed as cooperative with the school. Other conditions which might have led to underachievement were these:

1.	Death of a parent	12
2.	Broken homes	10
3.	Whims of mother or over protective parents	9
4.	Students with a guardian other than parents	5
5.	Pressure from parents to achieve	4
6.	Student's living part time with each parent	3
7.	Illness of father, mother, sister	3
8.	Parent's inability to recognize student's weaknesses	3
9.	Too much responsibility for home affairs	2
10.	Parents on the defensive	2
11.	Lack of adjustment to foster parent	1
12.	Lack of routine in the home	1
	Total	55

There might have been other home conditions not conducive to achievement such as the number of other children in the home. Shaw in his "Definition and Identification of Academic Underachievers" gave this view:[46]

> Family size and constellation also appear to have some bearing upon the existence of underachievement, with underachievers tending to come from larger families.

The number of children in the homes of the group studied were as follows:

Number of Homes	Number of Children in the Home
50	1
68	2
59	3

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46. Melvin C. Shaw, II, "Definition and Identification of Academic Underachievers," Guidance for the Underachiever With Superior Ability, (Washington, D. C.: U. S. Department of Health, Education and Welfare, 1961), p. 23.

Number of Homes--(continued)-	Number of Children in the Home
37	4
15	5
7	6
1	7
1	11

Grandparents, uncles, aunts and other relatives often found in homes might confuse the children with too much adult authority in the home. At least twenty-one homes had one other relative in addition to the parents and other children in the home, eleven had two, and three had three. Other than to show the number of other relatives in the home, the records did not show whether this influenced the individuals of the group.

If both parents were working, a student might be left to his own devices in the afternoon. Perhaps no time was given to help the children or at least to encourage them in their work. In eighty-three of the homes both parents were working. Among the types of occupations of the parents were these:

Types of Occupations	Father	Mother
1. Professional	20	10
2. Managerial	37	5
3. Clerical	19	42
4. Retired	11	0
5. Salesmanship	28	9
6. Maintenance	58	13
7. Labor services	20	0
8. Passenger service	16	0
9. Armed service	4	0

Although statistics in the exact kinds of occupations for this group alone were not available, they were available for the entire school for the year this experimental group was in the eighth grade. It was not expected that these statistics would differ very far from the total found for the entire school. In this statistical survey for the entire school 15 per cent of the parents had college degrees; approximately 30-40 per cent had high school diplomas; and nearly 50 per cent did not finish high school. Fifteen per cent held professional or technical positions, while more than 50 per cent had moderate or low incomes.[47] The home influences, education of the parents, low income of the parents as well as parental apathy and lack of cooperation might have influenced the achievement of these students.

III. QUESTIONNAIRE

The questionnaire found in Table XXIII was given to the students on the last day of their eighth grade year and they were requested to state for themselves frequencies of causes why they had not done their best work. It was interesting to note the students placed worry, outside interests, laziness, lack of understanding of the work,

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47. Unpublished material from the Committee Report on "Home and Community" of the "Self Evaluation Study," from the confidential files of the school of the experimental group, 1963.

TABLE XXIII

DISTRIBUTION OF STUDENTS' ANSWERS TO QUESTIONNAIRES ON CAUSES OF UNDERACHIEVEMENT

Causes		Yes
1.	Worry	140
2.	Outside interests	123
3.	Laziness	116
4.	Lack of understanding of the work	110
5.	Poor instruction	104
6.	Dislike of the teacher	101
7.	Lack of interest	100
8.	Dislike of the teacher's having a favorite student	100
9.	Discouragement	98
10.	Lack of help when needed	88
11.	Differences with the teacher	84
12.	Inability to finish work	67
13.	Pressure from home to do better	63
14.	Lack of ambition	48
15.	Already in trouble	43
16.	Environment of community	38
17.	Lack of ability	38
18.	Other causes	37
19.	Fear of being thought too intelligent	36
20.	Wrong kind of friends	36
21.	Poor home conditions	33
22.	Poor health	31
23.	Fear of being called an "egg head"	22
24.	Classmates'unfriendliness	21
25.	Work to support the family	13

poor instruction, dislike of the teacher and her favorites, and lack of interest as the greatest causes for their inability to do the work of the grade in accordance with their ability.

Gladys Dollins in her study on "The Influences of Mobility on the Academic Program of Pupils" revealed that:

> ...the children of military personnel and civil service employees who are forced to transfer so frequently from one school to another...are retarded in their academic achievement when compared with children in a stable school situation.[48]

Exclusive of the school in which this study was made, the following numbers of schools were attended:

Number of Students	Number of Schools
104	1
62	2
48	3
13	4
5	5
4	6
1	10
1	16

Though this shifting from school to school has been known to lead to underachievement, the one student who had attended sixteen schools because she was the daughter of an army officer had managed to keep her academic record very high. Not all of the group were quite that fortunate.

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48. Gladys Dollins, "Influences of Mobility on the Academic Progress of Pupils in the Fourth and Sixth Grades of Quantico Post Elementary School," (unpublished Master's thesis, University of Richmond, 1953), p. 28.

Sixty-six and one-half per cent of students in this study had attended the same school. Sixteen and eight-tenths per cent came from three other schools, and 16.7 per cent came from various schools over the state. This fact was important because the school from which the largest number came was located in what was considered the best of the feeder school areas. The homes generally were better, the incomes were higher, and the school had a reputation for better instruction of its students. Attendance at too many elementary schools might have led these students to do less than their best.

High school work has been considered a full time job. Holding even part time jobs might have at times led students to underachieve. One hundred seventy-five of the group held part time jobs. There were at least twenty-four different kinds of jobs involved. Seventy-seven girls did mostly baby-sitting while twenty-nine of the boys cut grass and thirty-one had a paper route. This could have been a factor contributing to underachievement. At least two were advised to give up their morning paper routes because they were too tired later in the day to stay awake in class or to study at night. Only thirteen listed in the questionnaire on page 74 gave working to help support the family as a hindrance to achievement. Parents and teachers have often complained of students' having too many activities. Miriam Goldberg in

her studies among academically-talented underachievers believed that:

> In reality the high achiever is socially more active, participates in far more extra-curricular activities, and has more hobbies and out of school interests....[49]

One hundred twenty-three listed outside interests as a hindrance to achievement. Each year the students were asked to list their activities inside and outside of school and their hobbies. These were then recorded in the cumulative folder from which the following lists came:

Number of students	Number of school activities
139	0
66	1
56	2
24	3
10	4
4	5

Number of students	Number of outside activities
101	0
40	1
41	2
21	3
12	4
7	5
7	6

Number of students	Number of hobbies
139	0
29	1
31	2
26	3
8	4
6	5

49. Goldberg, op. cit., p. 63.

IV. NUMBER OF GRADES AND SUBJECTS FAILED

Previous academic success tends to lead to future academic success. Twenty-one students failed at least one grade below the seventh grade; nine failed two grades; and one failed three grades. The number of subjects failed in the seventh and eighth grades have been shown in the following presentation:

	No. Students Passing All Subjects		No. Subjects Failed					Total
Grade	No. Students	Not Listed	1	2	3	4	5	
7th	166	23	25	5	16	2	2	239
8th	145	0	18	26	23	17	10	239

The grades were averaged for the students in both the seventh and eighth grade with the following results:

			Students With These Averages					
Grade	Honor Students (2 A's and nothing below B)	Not Listed	A	B	C	D	F	Total
7th	16	23	5	53	72	58	12	239
8th	18	0	10	43	73	71	24	239

A compilation of the distribution of letter grades in each subject were listed in Table XXIV for the seventh grade and Table XXV for the eighth grade.

V. PSYCHOLOGICAL EXAMINATIONS

Twenty of the group were given individual psychological examinations. Three of these studied individually were from

TABLE XXIV

DISTRIBUTION OF LETTER GRADES IN EACH SUBJECT IN THE SEVENTH GRADE

Subjects	Grades				
	A	B	C	D	F
Reading	4	30	46	32	5
Literature	3	10	12	3	2
English	18	36	72	64	12
Spelling	1	4	4	6	1
Arithmetic	47	62	52	68	27
History	17	51	65	51	16
Ind. Arts	1	6	7	5	2
Music	78	63	27	2	
Art	12	72	62	6	
Physical Ed.	61	99	27	4	1
Russian	6	3	3		
Spanish	2	8	5	2	0
Science	5	52	65	40	5
French	3	10	4		
Totals	258	506	451	283	71

TABLE XXV

DISTRIBUTION OF LETTER GRADES IN EACH SUBJECT IN THE EIGHTH GRADE

Subjects	Grades				
	A	B	C	D	F
English	6	53	71	57	36
Home Ec.	5	21	12		
Art		7	3		
Math.	20	37	57	50	57
History	18	39	47	66	51
Ind. Arts	2	5	28	32	5
Music	14	11	7	3	
Physics	18	38	50	70	44
Phy. Ed.	12	47	97	46	4
Biology	19	30	61	54	57
Russian	3	4	1		
French	14	13	5	2	
Algebra I	9	6			
Earth Science	6	9	2	1	3
Chemistry	6	11	2	12	
Total	152	331	443	393	257

the "C" group. One had average ability and two had low average ability. All three lacked confidence, needed reassurance, and had emotional problems. One of this special group was handicapped with partial deafness, another had very little ability to do academic work, and another had too many adults around him. These facts were interpreted by the psychologist.

In a similar psychological examination, the seventeen students from the regular classes were found to have the following ability:

Superior ability	2
Above average ability	7
Average ability	3
Low average ability	5

All students were working as slow-learners. Six had reading difficulties; six were emotionally disturbed; two wanted social acceptance; five lacked self confidence; and four had a feeling of insecurity. All had problems relating to their parents and the home environment such as parents' not speaking, barren background, father ineffectual as head of the family, family financial problems, parental pressures, parent's unwillingness to accept a slow-learner child, parent's rejection, and generally poor home environment. Two did have perceptual difficulties. Only one was actually listed as incapable of satisfactory academic work. The IQ range was as follows:

IQ's	Total IQ	Language IQ	Non-language IQ
121-130	1	2	1
111-120	3	1	1
101-110	6	5	5
91-100	3	6	5
81-90	4	2	3
71-80		1	2

VI. SUMMARY

Health, emotional, and personality habits have frequently been considered major factors influencing the school life of a student and his success in academic subjects. This group with its large number of health deficiencies proved no exception. The absenteeism shown in this chapter resulted in part from the many illnesses of these students. Their personality habits were many and varied, and only those were listed that might have been considered undesirable.

Some of the problems of this group in health and personality might have come from poor home environment and parental apathy. These conditions might have disturbed them to the extent that they became underachievers. Too many other children and too many relatives in the home might have influenced the problem of underachievement. The status of the home financially, the extent of their parents' education, and the employment of both parents could have been important reasons why some of these boys and girls did not find success in academic achievement.

Students themselves have often been able to understand the reasons for their inability to progress academically, and this they stated in their own answers in the questionnaire. Worry, outside interests, and laziness were most frequently listed as reasons of underachievement by the pupils themselves.

Attendance at a certain elementary school, or attendance at many schools played a part. Some may have used needed study time for part time work. Only thirteen felt their working was necessary. Hobbies, outside interests, and school activities occupied the time of a large number of the group, but the large number with few other interests might have been a cause for concern.

Previous academic work showed many subject failures. To state the cause of each failure would have been impossible, but certainly enough data have been given to show many reasons why these students have not reached their fullest potential.

The report of the individual psychological examinations gave additional information concerning the reason why twenty students of this group did not achieve their best.

Previous academic work showed many subject failures. To state the cause of each failure would have been impossible, but certainly enough data have been given to show many possible causes why these students have not reached their fullest potential.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

I. SUMMARY

Many possible causes of underachievement in an eighth grade group in a large urban high school have been presented in this study. The program for the eighth grade of this large city high school included three levels of ability: the "X" program, the "Y" program, and the "C" program. The cumulative folders with their many test scores and anecdotal records were the main sources of information for the data used in this study. Student answers to a questionnaire gave their opinions for their lack of achievement.

Literature concerning the causes why pupils have not worked up to their potential capacity was reviewed. Approximately one third of the students in the fifth grade and one fourth in the sixth grade were achieving below grade level.

Many were doing work below the fiftieth percentile; this in itself might indicate a lower level of achievement. Quite a few were working below the 30th percentile. Some in the regular program had IQ's similar to those working on the "C" program. Health, emotional problems, and personality habits showed many implications for underachievement of the students in this experimental group. Parental cooperation

and attitudes were not conducive to satisfactory achievement.

Many were failing subjects or making low grades. If this eighth grade were typical of other eighth grade sections (and there was no reason to believe otherwise) approximately the lowest third of the group would not be expected to attain normal achievement levels. The range of IQ's below 100, the number working below grade level, and the number of the group achieving below the 30th percentile would indicate less than normal work.

II. CONCLUSIONS

The examination of the data presented herein suggests the following conclusions:

1. The large percentage of students with IQ below 100 pointed to a need for this study.
2. The fact that many of these students were achieving one or more grade levels below their actual grade placement stimulated an investigation into below grade level work.
3. A further study needs to be made to discover why many of the students in question were achieving at a low percentile in their academic work.
4. The number of those achieving below-grade level and below the 50th percentile in the various academic skills needs further study in order to identify better the areas of weakness.

5. The degree of underachievement in reading skills indicated a need to strengthen the reading program at this level.
6. The number of those achieving below the third decile would indicate a possible need to ascertain if these students should be placed in the "C" program.
7. The aptitude tests revealed that more students were capable of achieving than did achieve according to the grade and subjects failed.
8. Fifty per cent showed a low rank on the occupational interest inventory as to (1) fields, (2) types and (3) levels of interest.
9. A wide variety of physical disorders and emotional disturbances revealed possible causes for lack of achievement.
10. The considerable number of undesirable personality habits indicated many young people need counseling.
11. Home influences and environmental surroundings gave reasons for understanding some of the underachievement.
12. Students placed worry, laziness, and outside interest as the main causes of their failure to do better work.

III. RECOMMENDATIONS

The implications of many causes of underachievement at the eighth grade level of this group led to these recommendations:

1. That a continuing study be made of failing students in every eighth grade section to determine causes and possible remedies for the failures.
2. That teachers and guidance counselors be encouraged to evaluate the student's achievement regularly in terms of all factors involved and give him the necessary assistance in reaching a higher potential.
3. That health, emotional problems, and personality habits of eighth grade students be studied in order to aid and counsel them when they need it.
4. That there be more conferences among the teachers, counselors, and parents in order to understand environmental influences.
5. That teachers and counselors encourage and assist students with scholastic ability to achieve their maximum in all subjects.
6. That teachers and parents aid in offering information for occupations and vocations so

that the pupils will be able to select courses in line with their interests and aptitudes and in order that they may have a definite goal towards which to work.

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VITA

Ann Northington Westlow, daughter of the late Mr. and Mrs. C. M. Boston, was born February 26, 1915 in Clifton Forge, Virginia. In 1917 at the death of her mother, she went to live with her maternal aunt and her husband, the late Mr. and Mrs. Herbert D. Northington whose name she assumed.

In 1931 she was graduated from John Marshall High School, Richmond, Virginia. She received her B. A. from the College of William and Mary in 1935 and did a year of graduate study in Latin and English. While at William and Mary, she was elected to membership in Kappa Delta Pi, Eta Sigma Phi (Megas Epistolagraphos of the national organization, 1934) and Phi Beta Kappa. In 1959 she was elected to membership in Alpha Delta Kappa.

In June, 1947 she was married to Dr. Edward James Westlow, a practicing chiropodist of Chicago, Illinois. A son, Edward J. Westlow, Jr., was born in 1949.

Except for a year after the birth of her son, she has taught for 27 consecutive years; six in Buchanan and Hanover counties, and the remainder in Richmond, Virginia, the last four of which have been in English and history at George Wythe High School.

For the summers 1959, 1960, 1961, 1963, and 1964 she has been enrolled in the graduate program at the University of Richmond as a candidate for the degree of Master of Science in Education.