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ABSTRACT

The North Carolina Advancement School was funded by the State of North Carolina in 1967 and charged with the task of conducting research into the causes of underachievement, and experimenting with approaches for its remediation. This is the sixth in the series of research reports. The subjects of the study were sixth-graders who participated in the residential and instructional program during 1969 and 1970. The results of various tests and evaluations show that students attending the 1969 fall term did not evidence the positive gains on achievement, attitudes, self-concepts, and achievement responsibility that were observed for the 1970 spring group. Underachievers had lower self-concepts, more negative views toward home, school, and teachers, and assumed less responsibility for their learning than "typical" students. Various recommendations are presented on what research needs to be done in the future. [For related reports, see ED 045 761-765, and UD 011 486.] (Author/JW)

A RESEARCH REPORT OF

THE NORTH CAROLINA ADVANCEMENT SCHOOL

FALL TERM, 1969

SPRING TERM, 1970

Submitted to the Board of Governors
and the North Carolina State Board of Education

Edited by Ernestine Godfrey

Winston-Salem, North Carolina

March, 1971

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The North Carolina Advancement School Research Report, Spring, 1968 Followup. Winston-Salem, North Carolina, November 1969.

The North Carolina Advancement School Research Report, Summer, 1969. Winston-Salem, North Carolina, January, 1971.

FOREWORD

The North Carolina Advancement School was funded by the state of North Carolina in 1967 and charged with the task of conducting research into the causes of underachievement and experimenting with approaches for its remediation. Since it opened in January 1968, the school has worked with underachieving students from grades four through eight. Results of research with these age groups have been previously reported. This report is the sixth in the series of research reports and can best be understood with a knowledge of the contents of earlier reports.

The emphasis of research through the 1969 summer term was that of identifying characteristics of underachievement and experimenting with instructional approaches designed to remedy underachievement. The research described in this report is a continuation of these efforts; however, more emphasis has been given to research into remedial approaches as well as areas related to school achievement.

ACKNOWLEDGEMENTS

Gratitude is expressed to the Board of Governors and to the State Board of Education for their continuing support and encouragement and for their meaningful advice and directions in carrying out the purposes of the Advancement School. The assistance of Mr. A. C. Davis, Dr. H. T. Conner, and Dr. Jerome Melton, who served as special consultants to the Board of Governors, has been of particular significance in planning and implementing the program of the school.

Grateful appreciation is extended to Dr. Scott Gehman, consultant psychologist from Duke University, and to Dr. Kinnard White, consultant in educational research from the University of North Carolina, for their help in designing this study and for their invaluable assistance in carrying out the objectives of the school.

The Advancement School is particularly indebted to the many educators in the public schools of North Carolina who gave their time and effort to assisting with the research described in this report, and without whose cooperation many of the projects would not have been possible.

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CHAPTER I

INTRODUCTION

Since the opening of the North Carolina Advancement School in January 1968, attempts have been made to describe through research the characteristics of the underachiever. From January 1968 through August 1969, data were obtained on more than 400 residential students from grades four through eight. These data enabled the Advancement School to describe the phenomenon of underachievement academically, psychologically, physically, and behaviorally. Previous research reports have presented these findings in detail.

In addition to describing characteristics of underachievement, the Advancement School has successfully experimented with programs to remedy the problem. Research conducted during the 1968-1969 academic year indicated that more success was attained with sixth-grade underachievers than with older students.[1] Even more success was reported for the 1969 Summer Term with rising fourth- and fifth-grade underachievers.[2] However, students younger than sixth-grade appeared to be too young to remain in a residential program for a full term.

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[1] See the North Carolina Advancement School Research Report Fall, 1968 and Spring, 1969, Winston-Salem, North Carolina, October, 1969.

[2] See the North Carolina Advancement School Research Report Summer, 1969, Winston-Salem, North Carolina, January 1971.

Research findings and staff experience indicated that sixth-grade students would be the most appropriate group for research to be conducted during the 1969-1970 academic year.

Advancement School research further indicated a need to explore several areas related to academic achievement, including behavioral characteristics of underachievers, effective counseling approaches, modalities of learning, and differences between underachievers and normal achievers.

The overall research program for the 1969-1970 school year was designed to answer the following questions:

1. What are the academic, psychological, and behavioral characteristics of sixth-grade underachieving boys? How do underachieving boys of sixth-grade differ from underachieving boys of grades four, five, seven, and eight?
2. What treatments are effective with underachieving sixth-grade boys and how do they differ from treatments for boys of other grades who have attended the Advancement School?

In addition to the overall research program, several individual projects were designed to answer the following questions:

1. What are typical students in grades six and seven like? How do they differ from underachieving students in intelligence, achievement, self-concepts, attitudes, and achievement responsibility?

2. What counseling techniques are most effective with sixth-grade boys? Is the individual counseling interview as important as is generally accepted in changing behavior? Are other therapeutic elements within the school setting (specifically art and play) of equal value?
3. How do learning modalities affect achievement? Can students be classified by learning modality for prescribing instructional treatment? Does one modality predominate among underachievers?
4. Are there behavioral differences between average students and underachievers? Does behavior differ with respect to sex, race, and grade of students?
5. Can students effectively direct their own learning in a skill area such as reading? Will students in a self-directed learning situation utilizing self-evaluation achieve as well as students in a teacher-directed and teacher-evaluated class?

As with previous research, the underachiever was defined as a student with average or above-average intelligence who was not achieving at his expected level as assessed by standardized tests, teacher observation, and academic record. Students were selected randomly from qualified applicants nominated by schools throughout the state.

THE INSTRUCTIONAL PROGRAM

The instructional program implemented during the 1969-1970 school year was basically the same as for previous terms.[3] The program consisted of three instructional areas:

1. A humanities program emphasizing the role of counseling, with learning experiences designed around problems of concern to students, and incorporating social studies and language arts.
2. A learning center emphasizing skill development in reading and mathematics. Further descriptions of math and reading programs are included in Chapter III.
3. An exploratory curriculum including science, art, music, physical education, industrial arts, and other areas of special interest to students.

During the 1969 fall term, the instructional program was implemented through a team teaching situation; during the 1970 spring term, all classes were departmentalized.

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[3] For a more detailed description of the philosophy of the school and its overall program, see The North Carolina Advancement School Research Report, Spring 1968, Winston-Salem, North Carolina, August, 1968.

CHAPTER II

A STATISTICAL ANALYSIS OF DATA: FALL 1969 AND SPRING 1970

The overall research conducted at the North Carolina Advancement School during the 1969-1970 academic year attempted to determine what changes occurred among students as a result of the treatment program. In addition, research attempted to further describe sixth-grade underachieving boys in terms of achievement levels, psychological characteristics and behavior.

I. COLLECTION OF THE DATA

Ninety-six sixth-grade boys were admitted for each of the two terms. For the fall 1969 term, a post-test, control group research design was used. For the Advancement School students (experimental group), complete data were obtained on eighty students; for the control group (students who were qualified for admission but could not be accepted because of lack of space[4]), data were obtained on twenty-six students. Students in both the experimental and control groups were tested by Advancement School staff members in the students' home schools in January 1970.

A pre-test, post-test design was utilized for the spring 1970 research. Pre-test data were collected at the beginning of the term in February 1970, and post-test data were collected

[4]The control group also included students who enrolled at the Advancement School but chose to return home during the first two weeks.

at the conclusion of the term in May, 1970. Complete pre-test, post-test data were available for 88 boys attending the 1970 spring term.

II. RESULTS OF THE STUDY

Data comparing the control and experimental groups for the 1969 fall term are reported in Table 1. Pre-test and post-test data for the sixth-graders attending the 1970 spring term are reported in Table 2. An analysis of these data yielded the following results in the areas indicated:

Achievement: To measure mathematics achievement, the Wide Range Achievement Test (WRAT)--Math section[5] was administered to fall term experimental and control students. A comparison of these scores indicated that control students were performing better than experimental students (a difference significant at the .05 level of confidence). The treatment program at the Advancement School did not result in higher performance in mathematics.

The students attending the 1970 spring term were not tested on math achievement since they participated in a special mathematics research project. (See Chapter III for a discussion of this project.)

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[5] J. F. Jastak, et.al., Wide Range Achievement Test, Wilmington, Delaware: Guidance Associates, 1965

TABLE 1. Comparison of Means and Standard Deviations for the Fall 1969 Experimental and Control Groups on the Post-Test Occasion

VARIABLE	Experimental Group (N = 80)		Control Group (N = 26)	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.
WRAT - Math[a]	80.8	9.0	84.5	9.7
Gates - Vocabulary[b]	21.8	8.5	23.9	10.0
Gates - Comprehension[b]	14.2	7.3	15.8	10.0
Tennessee Self Concept Scale[c]:				
Self-Criticism	52.5	9.4	48.1	10.2
Total Positive	40.0	8.6	42.3	8.4
Identity	40.5	8.6	40.8	10.4
Self-Satisfaction	45.4	9.5	46.7	8.5
Behavior	35.2	9.0	40.5	11.7
Physical Self	44.6	9.8	47.4	10.7
Moral-Ethical Self	34.3	9.2	36.9	10.9
Personal Self	44.8	11.5	46.6	8.8
Family Self	43.2	10.7	44.2	8.9
Social Self	40.5	9.0	42.8	9.3
Distribution	49.9	12.9	51.0	12.8
Semantic Differentials[b]:				
Me As I Am Now	42.3	6.6	42.4	7.2
Teachers	40.6	10.5	41.8	8.8
Home	42.1	7.2	43.4	8.0
School	39.6	8.6	39.7	9.3
Me As I Would Like To Be	49.5	8.3	48.1	8.3
IAR Scale[b]:				
Positive	11.7	3.1	12.3	2.9
Negative	11.0	2.7	11.2	2.4
Total	22.6	5.7	23.5	4.5

[a] Standard Scores [b] Raw Scores [c] T-Scores

TABLE 2. Comparison of Pre-Test and Post-test Means and Standard Deviations for Sixth-Grade Boys Attending the 1970 Spring Term of the NCAS.

Variable	N	Pre $\bar{X}$	S.D.	Post $\bar{X}$	S.D.	Correlated t-tests
Gates - Vocabulary	72			22.5	9.2	
Gates - Comprehension	72			18.3	8.5	
Tennessee Self-Concept Scale:						
Self-Criticism	88	51.1	8.7	51.2	8.9	0.03
Total Positive	88	40.9	9.5	44.2	11.3	3.57***
Identity	88	42.1	13.3	44.7	14.5	1.80*
Self-Satisfaction	88	45.4	9.7	47.3	12.1	1.61
Behavior	88	37.2	10.0	39.9	11.5	2.95***
Physical Self	88	45.2	12.3	45.6	11.1	0.31
Moral-Ethical Self	88	35.6	11.2	28.1	11.3	-2.27**
Personal Self	88	44.3	10.2	47.3	12.9	2.55**
Family Self	88	42.9	11.1	47.9	11.6	4.14***
Social Self	88	43.4	9.2	45.2	10.3	1.69
Distribution	88	54.8	14.6	49.1	15.6	-3.10***
Semantic Differentials:						
Me As I Am Now	87	39.6	7.0	43.2	7.2	4.47***
Teachers	87	38.9	10.3	43.1	8.6	3.72***
Home	87	40.2	9.4	44.1	7.5	3.71***
School	84	37.7	8.1	41.2	8.6	3.10***
Me As I Would Like To Be	83	47.6	10.2	50.3	6.8	2.29**
IAR Scale:						
Positive	85	12.5	2.7	13.1	2.2	2.20**
Negative	85	11.1	3.1	12.6	6.6	2.15**
Total	85	23.6	4.8	24.9	4.5	2.65***
NCAS Student Behavior Inventory:						
Aggression	88	15.6	5.0	14.3	4.5	-3.11***
Anxiety	88	9.5	2.0	8.6	1.9	-4.23***
Alienation	88	17.3	5.0	17.1	5.6	-0.40
Activity	88	4.9	1.7	4.1	1.6	-5.55***

* = $p < .10$ ** = $p < .05$ *** = $p < .01$

The Gates Reading Survey-Vocabulary and Comprehension sections[6] were administered to measure achievement in reading. Analysis of the data for the 1969 fall term revealed no significant differences between the control and experimental groups. For the spring 1970 term, only post-tests were given since students were participating in a reading research project. (See Chapter III.) However, post-test scores on reading indicated that students attending the spring term scored higher than students attending the fall term, although the spring group was still performing below grade level.

Self-Concepts. To assess self-concepts, the Tennessee Self-Concept Scale[7] was administered to all sixth-graders attending the Advancement School and to the control group for the fall term. (For a detailed description of the sub-scales of this instrument, see the Appendix.)

Test results for the fall 1969 term indicated few differences between the control and experimental groups. The overall self-concepts, indicated by the Total Positive score, were not significantly different for the two groups. Scores on three sub-scales represented statistically significant differences. On Self-Criticism, the experimental students

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[6] The Gates Reading Survey (revised), Columbia University: Bureau of Publications, 1960.

[7] W. H. Fitts, The Tennessee Self-Concept Scale, Nashville, Tennessee: Counselor Recordings and Tests, 1965.

scored higher ($p < .025$); on Physical Self, control students scored higher ($p < .01$); and on Behavior, control students scored higher ($p < .025$) than did experimental students.

For the spring 1970 term, Advancement School students showed significant change in self-concepts as measured by the Tennessee Self-Concept Scale. On overall self-concepts as measured by the Total Positive Score, Advancement School students evidenced a gain from the pre-test to the post-test significant at the .01 level of confidence.

Sub-scales which yielded statistically significant gains were Identity, ($p < .10$); Behavior, ($p < .01$); Personal Self, ($p < .05$); and Family Self, ($p < .01$). Sub-scales which indicated lesser views of self were Moral-Ethical Self ($p < .05$) and Distribution scores ($p < .01$).

The students attending the spring term generally showed much higher self-concept scores at the conclusion of the term than students who attended the fall term.

Another measure of self-concepts was obtained by using the semantic differential technique[8] to measure students' views toward themselves as individuals, toward their home,

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[8] Based on the original work by C. E. Osgood, G. Soci, and P. Tannenbaum, The Measurement of Meaning, Urbana, Ill.: University of Illinois Press, 1957. The actual items came from a study conducted with elementary school children using this technique. See Daniel C. Neale and J. M. Proshek, "School Related Attitudes of Culturally Disadvantaged Elementary School Children," Journal of Educational Psychology, 58: 238-244, 1967.

school, and teachers, and their perception of what their ideal self would be. The results of the semantic differentials indicated little difference between the experimental and control groups for the 1969 fall term. For the 1970 spring students, however, there were statistically significant gains from pre- to post-testing on each measure. In comparing students attending the Advancement School in the fall with those attending in the spring, the latter group scored higher on each of these self-concept measures.

On the basis of the two self-concept measures--Tennessee Self Concept Scale and semantic differentials--it is clear that the treatment program during the 1970 spring term produced much greater gains by students than the fall term program.

Achievement Responsibility. To measure the extent to which the student felt responsible for his learning, the Intellectual Achievement Responsibility (IAR) Scale[9] was administered. The IAR yields three scores--a positive score which indicates the degree to which the student feels responsible for his school successes; a negative score which indicates the degree to which the student feels responsible for his school failures; and a total score which indicates the degree to which the student feels

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[9]Virginia J. Crandall, W. Kathovsky, and S. Preston, "Motivational and Ability Determinants of Young Children's Intellectual Achievement Behaviors," Child Development, 33: 643-661, 1962.

responsible for his overall school achievement. High scores show that the student feels he is responsible for his own achievement, while low scores indicate the student blames external forces for his successes and failures and sees himself as unable to do anything about them.

Results of the IAR Scale indicated that the students enrolled for the spring 1970 term increased significantly in their acceptance of self-responsibility on both positive and negative scores, with gains from pre-test to post-test significant at the .05 level of confidence. Post-test results for this group were much higher than the results for the students attending the 1969 fall term.

Behavior. Table 2 also presents a comparison of pre-test and post-test scores on the North Carolina Advancement School Student Behavior Inventory[10] for the sixth-graders attending in the spring of 1970. (This measure was not obtained for the 1969 fall students.) Pre-test scores were obtained by averaging the ratings obtained from each boy's teachers at the Advancement School at the end of the first two weeks of attendance; post-test scores were averaged from ratings prior to the student's return home. The Student Behavior Inventory yields results for

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[10] Richard Allen, Ernestine Godfrey, and the North Carolina Advancement School, The North Carolina Advancement School Student Behavior Inventory, Winston-Salem, N.C., 1969. For a more detailed description of the inventory, see Chapter III.

four categories of behavior found to be common among underachievers--aggression, anxiety, alienation, and activity. Lower scores indicate less evidence of the behavior being measured.

Sixth-graders showed a significant decrease in three categories of behavior--aggression, anxiety, and activity--with all three decreases statistically significant at the .05 level. Alienation remained about the same. The results of the inventory indicated that behaviors related to underachievement showed significant decrease as a result of the student's attendance at the Advancement School.

Other Analyses. A comparison of the two groups of sixth-graders attending the Advancement School during the 1969-70 school year with typical sixth-graders in the public schools of North Carolina is presented in Tables 3 and 4. The comparison with typical sixth-graders was made possible by the testing for normative data reported in Chapter III.

Table 3 indicates that the control group for the 1969 fall term was somewhat more like the norm group than the experimental group. Because no pre-test measures were available, it is not possible to know how the control and experimental groups compared with the norm group at the time of enrollment at the Advancement School.

Table 4 indicates that sixth-graders entered the Advancement School in the spring of 1970 with lower self-concepts as measured

Table 3. Comparison of Post-Test Means for Experimental and Control Groups in Fall 1969 with Public School Sixth-Graders (Norm Group)

	Experimental Group (N = 80) $\overline{X}$	Control Group (N = 26) $\overline{X}$	Norm Group $\overline{X}$
Tennessee Self-Concept Scale			
Self-Criticism	51.5	48.1	51.8
Total Positive	40.0	42.3	42.4
Identity	40.5	40.8	41.1
Self-Satisfaction	45.4	46.7	46.8
Behavior	35.2	40.5	39.3
Physical Self	44.6	47.4	45.1
Moral-Ethical Self	34.3	36.9	38.5
Personal Self	44.8	46.6	47.0
Family Self	43.2	44.2	43.9
Social Self	40.5	42.8	42.3
Semantic Differentials			
Me Now	42.3	42.4	42.3
Teachers	40.6	41.8	40.7
Home	42.1	43.4	43.5
School	39.6	39.7	40.9
Ideal Self	49.5	48.1	50.3
IAR			
Positive	11.7	12.3	13.2
Negative	11.0	11.2	12.2
Total	22.6	23.5	25.4

Table 4. Comparison of Pre-Test, Post-Test Means for North Carolina Advancement School Sixth-Graders Attending Spring 1970 Term and Public School Sixth-Graders (Norm Group)

	NCAS Students			
	N	Pre	Post	State Norm
Tennessee Self-Concept Scale				
Self Criticism	88	51.1	51.2	51.8
Total Positive	88	40.9	44.2	42.4
Identity	88	42.1	44.7	41.1
Self-Satisfaction	88	45.4	47.3	46.8
Behavior	88	37.2	39.9	39.8
Physical Self	88	45.2	45.6	45.1
Moral-Ethical Self	88	35.6	28.1	38.5
Personal Self	88	44.3	47.3	47.0
Family Self	88	42.9	47.9	43.9
Social Self	88	43.4	45.2	42.3
Semantic Differentials				
Me Now	87	39.6	43.2	42.3
Teachers	87	38.9	43.1	40.7
Home	87	40.2	44.1	43.5
School	84	37.7	41.2	40.9
Ideal Self	83	47.6	50.3	50.3
IAR				
Positive	85	12.5	13.1	13.3
Negative	85	11.1	12.6	12.2
Total	85	23.6	24.9	25.4

by the Tennessee Self Concept Scale. On the semantic differentials, views of self, teachers, home, school and ideal self were all lower than the state norm. Results of the IAR revealed that students entering the Advancement School assumed less responsibility for their successes and failures than the norm group.

After attending the Advancement School, the scores on overall self-concepts (Total Positive) exceeded the norm. On sub-scales of the Tennessee Self Concept Scale, students showed gains to or above the norm except on the Moral-Ethical sub-scale.

On semantic differentials, the spring term students again scored at or above the norm on post-testing. Their views of teachers, school, and home were higher than those of typical students.

Results of the IAR Scale at post-testing indicated a growth toward the norm, with the greatest gain on the negative score indicating assumption of personal responsibility for failures.

Comparisons with the norm group for students attending the spring term were particularly rewarding, i.e. that the underachievers' self-concepts, attitudes, and responsibility at the end of the term had become very similar to those of the average public school student.

CHAPTER III

OTHER RESEARCH CONDUCTED DURING THE 1969-1970 SCHOOL YEAR

In addition to the overall research described in Chapter II, several projects were conducted during the 1969-1970 school year which attempted to further define and describe underachievement and to design instructional programs to meet the specific needs of underachievers. Chapter III includes the findings of the following research projects:

1. A normative study designed to differentiate between the underachiever and the normal achiever in terms of intelligence, achievement, self-concepts, attitudes, and responsibility for school achievement.
2. The development and standardization of a scale to measure classroom behavior of students, and to identify the underachieving student through his behavior.
3. A comparison of counseling techniques and approaches to determine what methods are most effective with underachievers of grade six.
4. An instructional approach based on self-direction by students in a skill area.
5. A study attempting to classify learning modalities of students and to design an instructional program taking advantage of the student's dominant learning modality.

I. NORMATIVE STUDY

During the 1969-1970 school year, much of the emphasis of the Advancement School research program focused on learning more about how the underachiever differed from typical students in the public schools. Behavioral differences were studied through the collection of data on the North Carolina Advancement School Student Behavior Inventory reported in the next section. To obtain some norms for North Carolina students which would allow the underachiever and achiever to be compared in other areas, a comprehensive testing project was conducted in January and February, 1970, by the Advancement School staff.

The project involved administering the instruments used at the Advancement School to more than 1200 boys and girls in sixth- and seventh-grade. Fourteen public schools from varying areas of the state were selected to provide a representative sample. Efforts were made to test students from all economic and social levels, and to keep a racial proportion similar to that of the state. Classes selected for testing were representative of the school in which the testing was conducted.

The results obtained provided sufficient data to establish norms on the instruments to compare the underachiever with the typical student on self-concepts, attitudes, responsi-

bility toward learning, achievement, and intelligence.[11] The data were analyzed by grade, race, sex, community size, and the number of grades repeated by the student.

A summary of the mean scores of all students tested is presented in Table 5. It can be observed that students in North Carolina schools are slightly above the national norm in intelligence, but are below the national norm in achievement and almost all self-concept measures. The norms established for the semantic differentials and the Intellectual Achievement Responsibility (IAR) Scale are the first available to the Advancement School, since no national norms exist for these two measures. The testing revealed that girls scored higher than boys in almost every area. This was particularly true for view of school and teachers, as well as responsibility for learning (IAR Scale).

Mean scores for male students in the norm group by grade and race for all measures are presented in Table 6. These data have been particularly useful in making comparisons with boys of the same grade who have attended the Advancement School.

Tables 7 and 8 compare scores obtained by Advancement School students with those obtained for the norm groups. It can be

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[11] For a further description of the testing project and a more detailed summary of the results, see Intelligence, Achievement, Self-Concepts, and Attitudes among 1216 Typical Sixth- and Seventh-Grade Students in Fourteen North Carolina Public Schools, The North Carolina Advancement School, Winston-Salem, North Carolina, November 1970.

Table 5. Mean Scores for Sixth- and Seventh-Graders in the Normative Group on Measures of Intelligence, Achievement, Self-Concept, Attitude and Responsibility for Learning.

Variable	Male (N = 586)	Female (N = 620)	Total (N = 1206)
Otis (IQ)	103.1	106.2	104.7
WRAT Math			
Standard Score	89	90	90
Percentile	23	25	25
Gates Reading (G. E.)			
Vocabulary	6.4	6.8	6.4
Comprehension	6.5	6.9	6.5
Tennessee Self Concept Scale (T-Scores)			
Self-Criticism	52.2	51.6	51.9
Total Positive	42.5	44.8	43.6
Identity	42.1	46.1	44.2
Self-Satisfaction	46.4	46.4	46.4
Behavior	40.0	42.9	41.5
Physical Self	46.0	46.4	46.2
Moral-Ethical Self	38.5	42.4	40.5
Personal Self	46.9	47.7	47.3
Family Self	43.8	45.7	44.7
Social Self	42.6	45.1	43.9
Semantic Differentials (Raw Scores)			
Me Now	42.5	43.2	42.8
Teachers	40.2	43.4	41.9
Home	43.3	43.1	43.2
School	40.7	43.3	42.0
Ideal Me	50.6	50.6	50.6
IAR (Raw Scores)			
Positive	13.3	14.0	13.6
Negative	12.1	12.7	12.4
Total	25.2	26.3	25.8

TABLE 6. Mean Scores for Public School Boys in Grades Six and Seven on Measures of Intelligence, Achievement, Self-Concepts, Attitudes, and Responsibility for Learning.

VARIABLE	SIXTH-GRADE White (N=240)	SIXTH-GRADE Non-White (N=59)	SIXTH-GRADE Total (N=299)	SEVENTH-GRADE White (N=225)	SEVENTH-GRADE Non-White (N=62)	SEVENTH-GRADE Total (N=287)
Otis Q-S MAT (I.Q.)	105.1	92.2	102.6	106.5	93.4	103.6
WRAT - Math						
Standard Score	90	80	88	92	81	89
Percentile	25	09	21	30	10	23
Gates Reading						
Vocabulary (G. E.)	6.2	4.8	6.0	7.2	5.6	6.8
Comprehension (G. E.)	6.2	4.8	5.8	7.3	5.2	6.9
Tennessee Self Concept Scale (T-Scores)						
Self-Criticism	52.2	50.3	51.8	52.6	52.6	52.6
Total Positive	42.7	41.0	42.4	42.7	42.1	42.6
Identity	41.3	40.2	41.1	42.7	44.9	43.2
Self-Satisfaction	47.3	44.7	46.8	46.5	44.6	46.0
Behavior	39.7	39.9	39.8	39.7	41.6	40.1
Physical Self	45.0	45.3	45.1	46.9	47.8	47.1
Moral-Ethical Self	38.9	37.0	38.5	39.1	36.5	38.5
Personal Self	46.8	47.6	47.0	46.6	47.4	46.7
Family Self	44.0	43.3	43.9	43.6	44.1	43.7
Social Self	43.0	39.4	42.3	42.9	43.4	43.0
Semantic Differentials (Raw Scores)						
Me Now	42.8	40.4	42.3	42.8	42.0	42.6
Teachers	40.0	43.5	40.7	39.2	41.9	39.8
Home	44.0	41.4	43.5	43.6	41.8	43.2
School	40.9	40.8	40.9	40.6	39.8	40.4
Ideal Self	51.3	46.5	50.3	51.8	47.4	50.8
IAR Scale (Raw Scores)						
Positive	13.5	12.6	13.3	13.4	12.8	13.3
Negative	12.3	11.2	12.1	12.2	11.4	12.1
Total	25.7	23.8	25.3	25.4	24.2	25.1

TABLE 7. Comparison of Mean Scores of All Sixth-Grade Advancement School Students With Typical Sixth-Grade Public School Students.

VARIABLE	NCAS SIXTH-GRADERS N	PRE-TEST	N*	POST-TEST	PUBLIC SCHOOL N	SIXTH-GRADERS
Tennessee Self Concept Scale						
Self-Criticism	212	50.1	292	51.5	299	51.8
Total Positive	212	40.6	292	41.6	299	42.4
Identity	212	40.6	292	42.5	299	41.1
Self-Satisfaction	212	44.8	292	45.4	299	46.8
Behavior	212	40.0	291	38.2	299	39.8
Physical Self	212	44.5	291	45.4	299	45.1
Moral-Ethical Self	212	36.0	291	33.1	299	38.5
Personal Self	212	43.7	291	45.6	299	47.0
Family Self	212	43.1	291	44.9	299	43.9
Social Self	212	42.0	291	42.0	299	42.3
IAR Scale						
Positive	192	12.7	272	12.8	290	13.3
Negative	192	11.6	272	12.1	290	12.1
Total	192	24.3	272	24.9	290	25.3
Semantic Differentials						
School	196	38.5	276	40.4	295	40.9
Home	196	41.5	276	44.2	295	43.5
Teachers	196	40.6	276	42.1	295	40.7
Ideal Self	191	49.0	272	50.9	295	50.3

* Discrepancy in the number of students taking post-tests and not taking pre-tests is accounted for by the Fall 1969 research design in which no pre-tests were administered.

With Typical Seventh-Grade Public School Students.

VARIABLE	NCAS SEVENTH-GRADERS N	PRE-TEST	N	POST-TEST	PUBLIC SCHOOL SEVENTH GRADERS N	NORM
Tennessee Self Concept Scale						
Self-Criticism	112	47.0	112	50.3	287	52.6
Total Positive	112	42.0	112	41.8	287	42.6
Identity	112	41.2	112	42.3	287	43.2
Self-Satisfaction	112	45.6	112	45.2	287	46.0
Behavior	112	40.8	112	38.9	287	40.1
Physical Self	112	46.4	112	46.2	287	47.1
Moral-Ethical Self	112	41.9	112	37.9	287	38.5
Personal Self	112	42.0	112	45.4	287	46.7
Family Self	112	42.4	112	42.7	287	43.7
Social Self	112	42.2	112	41.4	287	43.0
IAR Scale						
Positive	111	13.0	111	13.6	287	13.3
Negative	111	11.9	111	11.8	287	12.1
Total	111	25.0	111	25.3	287	25.1
Semantic Differentials						
School	113	41.2	113	42.7	287	40.4
Home	113	43.5	113	47.0	287	43.2
Teachers	113	43.8	113	42.6	287	39.8
Ideal	113	49.3	113	51.6	287	50.8

observed that underachievers entering the Advancement School scored lower than typical students in almost all measures. Positive changes which have resulted on the post-test occasions have generally been toward the norm.

A closer examination of the data reveals that two sub-scales of the Tennessee Self Concept Scale--Behavior and Moral-Ethical Self--have declined for both sixth- and seventh-grade Advancement School students from the pre-test to the post-test occasion. The Behavior score is not very different from that of typical students. However, Moral-Ethical Self presents a clear difference. It can be speculated that Advancement School students, who are not required to participate in religious activities during their stay, may see themselves as less religious than the norm. (Items on the Moral-Ethical sub-scale are generally church-related.)

Of particular note in Table 7 which compares underachieving sixth-graders and typical sixth-graders are the IAR Scale negative scores which showed a definite increase from pre- to post-test; and the Advancement School students' gains on School and Teachers on the semantic differentials. These scores are at or above the norm on the post-test occasion.

The scores on Family Self on the Tennessee Self Concept Scale and Self at Home on the semantic differentials both were higher than the norm on the post-test occasion--probably as a result of the residential program of the Advancement

School. Some of the differences noted for sixth-graders may also be observed for seventh-graders.

The data obtained through the normative study are being subjected to further analyses to enable the Advancement School to further differentiate between underachievers and typical students. The data have also provided information about students in the public schools which warrants further study by researchers in education.[12]

II. THE NORTH CAROLINA ADVANCEMENT SCHOOL STUDENT BEHAVIOR INVENTORY

Work at the Advancement School has pointed to the behavior of underachievers as having common characteristics. Efforts begun in the fall of 1968 to define specific behavioral characteristics of the underachiever. Utilizing the findings of other researchers as well as staff observations, the North Carolina Advancement School Student Behavior Inventory was devised to measure overt classroom behavior of students.

The Student Behavior Inventory was designed to answer the questions about underachievement:

1. Are certain kinds of behavior unique to underachiev

---

[12] Of particular interest was the obvious difference in self-concepts and views of school between students who had repeated grades (experienced failure) and those who had not. Repeaters tended to evidence extremely poor self-concepts in all areas and viewed school and school-related activities very negatively. A paper based on these data has been submitted for publication. (James Lee Howard and Kinnard White, "Role Failure and Self-Concept Among Elementary School Children" January, 1971.)

2. Can the underachiever therefore be identified through his behavior before the onset of academic problems?
3. Can categories of underachievement be defined on the basis of behavioral differences? If so, different treatments could then be designed for different kinds of underachievement.

The behavior inventory is a brief (22 items) scale to be completed by the teacher. All items relate to observable behavior; the teacher is asked to rate on a scale from one to five the degree to which the behavior applies to the student. The items are applicable to any grade level. A copy of the inventory is included in the Appendix.

Four behavior factors compose the Student Behavior Inventory--Aggression, Alienation, Anxiety, and Activity.

The student who demonstrates aggressive behavior tends to break rules, talk back to teachers, lose his temper easily, pick on smaller children, and annoy or tease his peers. He attempts to solve conflicts by fighting and hitting others.

Alienated behavior is typically the behavior shown by students who require constant prodding or encouragement to do any work, who waste time, give up easily, lose or misplace materials, daydream in class, and do not do their assigned work. They seldom participate in class discussions and may appear withdrawn.

Anxiety is represented by students who crave adult attention; they want to sit near the teacher and seek the teacher's approval. They worry about knowing the right answers and want directions repeated often. They tend to be "loners" and do not work well on their own or with peers.

Activity is the factor represented by behavior such as not being able to sit still in class, being physically restless, interrupting others or talking constantly. Students who exhibit this type of behavior seem not to be able to concentrate for long periods of time.

These four factors--Aggression, Alienation, Anxiety, and Activity--represent four distinctly different kinds of behavior.

The standardization of the Student Behavior Inventory began in January 1970, when 200 randomly-selected teachers of grades four through eight were asked by the Advancement School to rate every student in one of their classes.[13] Care was taken to insure a representative sample. Although only boys have attended the Advancement School, both boys and girls were rated in the standardization process, since data on girls may be needed for future research. Schools were randomly picked from those who had nominated students to the Advancement School.

A total of 4,089 students were rated. Table 9 gives a description of the norm group according to sex, race, grade, and size

[13] For a more complete description of the development and standardization of the inventory, see Richard F. Allen, "Behavior of Students Redefined," in The North Carolina Advancement School: Underachievement Redefined, March, 1970.

Table 9. Demographic Data Describing the Standardization Sample for the NCAS Student Behavior Inventory

Sex		Race		Size of Community		
Male	Female	White	Non-White	Under 10,000	10,000-60,000	Over 60,000
2077	2012	2795	1294	2435	792	859

Grade				
4	5	6	7	8
821	665	1029	996	578

of the community. These data indicate that the norm sample was representative of North Carolina public school children from fourth- through eighth-grades.

Means and standard deviations for the four factors of the Student Behavior Inventory were computed by sex, race, grade, and size of the community. These data are reported in Table 10. Means and standard deviations for the four factors by sex and school grade are presented in Table 11.

Significant differences were found in the behavior of male and female students, with males being more aggressive, alienated, and active, but no significant difference occurred in anxiety. White students scored significantly lower than non-white students on all four factors. All four behavioral categories tended to increase with grade except for sixth-grade, where there was a consistently lower rating.

Comparisons were made between those students rated as never underachieving and those rated as always underachieving. (A special research item was incorporated into the inventory for this purpose.) The results of these comparisons are reported in Table 12, and indicate that there is a distinct difference between the behavior of the student who underachieves in the classroom and the student who does not underachieve. The underachiever is more aggressive, more alienated, more anxious, and more active.

TABLE 10

MEANS AND STANDARD DEVIATIONS OF EACH OF THE FOUR FACTORS
(AGGRESSION, ALIENATION, ANXIETY, AND ACTIVITY)
ON THE STUDENT BEHAVIOR INVENTORY BY SEX, RACE, GRADE, AND SIZE OF COMMUNITY

		Sex		Race		Grade					Size of Community		
		Male	Female	White	Non-White	4	5	6	7	8	Under 10,000	10,000-60,000	Over 60,000
N		2027	2012	2795	1294	821	665	1029	996	578	2435	792	859
Aggression	$\bar{X}$	15.71	12.90	13.54	16.05	13.67	14.85	13.14	15.29	15.13	14.47	14.30	13.96
	S.D.	7.13	5.99	6.47	6.99	6.72	6.80	5.80	7.02	7.04	6.71	6.58	6.96
Alienation	$\bar{X}$	21.29	17.73	18.42	21.96	18.97	19.91	18.14	20.51	20.72	19.61	19.58	19.29
	S.D.	8.87	7.78	8.40	8.32	8.66	8.32	8.36	8.34	8.86	8.32	8.51	9.15
Anxiety	$\bar{X}$	8.86	8.85	8.73	9.13	8.40	9.19	8.33	9.34	9.22	8.75	9.01	9.01
	S.D.	3.24	3.20	3.35	2.90	3.29	3.12	3.10	3.20	3.25	3.15	3.20	3.40
Activity	$\bar{X}$	5.26	4.21	4.57	5.12	4.74	5.05	4.44	4.82	4.85	4.77	4.62	4.81
	S.D.	2.46	2.22	2.36	2.47	2.48	2.46	2.30	2.40	2.38	2.41	2.28	2.52

TABLE 11

MEANS AND STANDARD DEVIATIONS FOR THE FOUR FACTORS ON THE NORTH CAROLINA ADVANCEMENT SCHOOL STUDENT BEHAVIOR INVENTORY STRATIFIED BY SEX AND SCHOOL GRADE

Variables			School Grade				
			Four	Five	Six	Seven	Eight
Factor 1 ACTIVITY	Boys	N	408	3[illegible]5	513	537	293
		$\bar{X}$	5.33	5.[illegible]1	4.94	5.40	5.33
		S.D.	2.58	2.[illegible]6	[illegible].[illegible]4	2.43	2.43
	Girls	N	413	3[illegible]0	516	459	284
		$\bar{X}$	4.15	4.[illegible]1	[illegible].94	4.13	4.34
		S.D.	2.22	2.[illegible]2	[illegible].16	2.17	2.23
Factor 2 AGGRESSION	Boys	N	408	3[illegible]5	513	536	294
		$\bar{X}$	14.99	16.[illegible]0	14.[illegible]2	16.77	16.23
		S.D.	7.33	7.[illegible]4	6.[illegible]1	7.48	6.85
	Girls	N	413	3[illegible]0	516	458	284
		$\bar{X}$	12.36	13.[illegible]6	11.77	13.56	14.00
		S.D.	5.78	5.[illegible]0	4.87	6.45	7.07
Factor 3 ANXIETY	Boys	N	407	3[illegible]5	513	537	294
		$\bar{X}$	8.11	8.[illegible]5	8.46	9.39	9.54
		S.D.	3.28	3.[illegible]7	3.10	3.12	3.40
	Girls	N	413	3[illegible]0	51[illegible]	459	284
		$\bar{X}$	8.68	9.[illegible]2	[illegible].20	9.28	8.88
		S.D.	3.27	3.[illegible]6	[illegible].10	3.28	3.05
Factor 4 ALIENATION	Boys	N	407	3[illegible]3	51[illegible]	537	294
		$\bar{X}$	20.99	21.[illegible]2	20.0[illegible]	22.03	22.56
		S.D.	8.98	8.[illegible]0	[illegible].7[illegible]	8.59	9.30
	Girls	N	413	3[illegible]0	51[illegible]	459	284
		$\bar{X}$	16.98	18.[illegible]6	16.2[illegible]	18.72	18.82
		S.D.	7.86	7.[illegible]1	7.5[illegible]	7.67	7.96

TABLE 12

MEANS AND STANDARD DEVIATIONS FOR THE FOUR FACTORS OF THE STUDENT BEHAVIOR INVENTORY FOR STUDENTS RATED ON THE RESEARCH ITEM AT EXTREME ENDS OF THE SCALE, STRATIFIED BY GRADE

School Grade	Rating	N	Factor 1 ACTIVITY		Factor 2 AGGRESSION		Factor 3 ANXIETY		Factor 4 ALIENATION	
			$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
4	Never Applies	229	3.38	2.14	10.38	4.47	6.75	3.06	10.86	4.46
	Always Applies	91	6.32	2.77	18.36	8.67	9.11	6.75	30.57	6.05
5	Never Applies	116	3.61	2.08	10.40	4.16	7.22	2.99	10.89	3.86
	Always Applies	76	6.89	2.62	20.41	8.64	10.30	3.46	29.41	6.62
6	Never Applies	267	3.06	1.72	9.72	3.86	6.70	2.88	10.97	4.71
	Always Applies	37	6.78	2.64	19.84	6.88	9.41	3.88	30.19	6.62
7	Never Applies	150	3.01	1.65	10.34	4.20	7.56	3.36	11.20	4.47
	Always Applies	113	6.32	2.59	20.13	8.68	10.12	3.46	29.15	7.13
8	Never Applies	90	3.56	1.93	10.77	4.88	7.07	3.38	10.86	3.97
	Always Applies	84	5.64	2.93	17.73	7.62	9.34	3.40	30.69	7.76

An analysis of covariance comparing students rated as never underachieving with those who were rated underachievers indicated that the alienation factor was the best single predictor of underachievement. (See Table 13.)

A further analysis was undertaken to determine if those students rated as underachievers by their teachers were underachieving on the basis of the criteria used by the Advancement School. Data were compared for those students on whom both behavior ratings and intelligence and achievement test scores were available as a result of their participation in the normative study described in the previous section. The results of this comparison supported the teachers' ratings on the behavior inventory and, therefore, validated the results of the research.

The North Carolina Advancement School Student Behavior Inventory has already been used in several projects, including followup studies of former Advancement School students. In one public school, first-grade teachers rated all their students on the inventory, and potential underachievers have been identified on the basis of these behavior ratings. Followup will be done at a later time to determine whether the instrument is valid as a predictor of underachievement.

Student Behavior Inventory ratings on all students attending attending the 1970 spring term of the Advancement School were made each two weeks by all Advancement School teachers. These ratings were a part of the counseling research project described in the

TABLE 13

RESULTS OF ANALYSES OF COVARIANCE (F-RATIOS)
COMPARING STUDENTS RATED AT EXTREME ENDS OF THE RESEARCH ITEM
ON EACH BEHAVIORAL FACTOR OF THE STUDENT BEHAVIOR INVENTORY

Factor	School Grade				
	4	5	6	7	8
ACTIVITY	103.72	93.20	131.33	164.56	37.71
AGGRESSION	116.56	115.17	227.76	153.16	57.43
ANXIETY	35.78	43.27	27.55	37.26	8.25
ALIENATION	1028.66	598.71	484.02	646.97	458.74

Note: All F's significant ($p < .01$)

following section, and were aimed at providing some measure of the effectiveness of counseling approaches. In addition, the behavior inventories indicated behavioral changes as the term progressed. Figure 1 shows the fluctuation in behavior observed by teachers as recorded on the behavior inventory.

It can be observed that the measured behavior generally increased until about the middle of the semester, when there was a decline. In some cases the scores rose from this point; in others, they continued to decline. Reasons for these differences are not known; however, further study might indicate a time at which the student would be most likely to successfully re-enter a public school classroom.

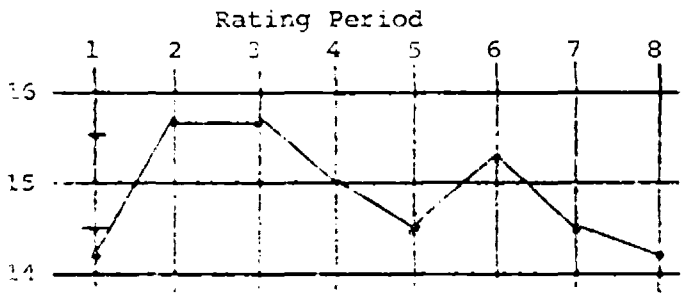
The potential uses of the Student Behavior Inventory in research are numerous and the Advancement School will continue to utilize the instrument in efforts to plan more effective programs for underachievers.

SECTION III. COUNSELING STUDIES

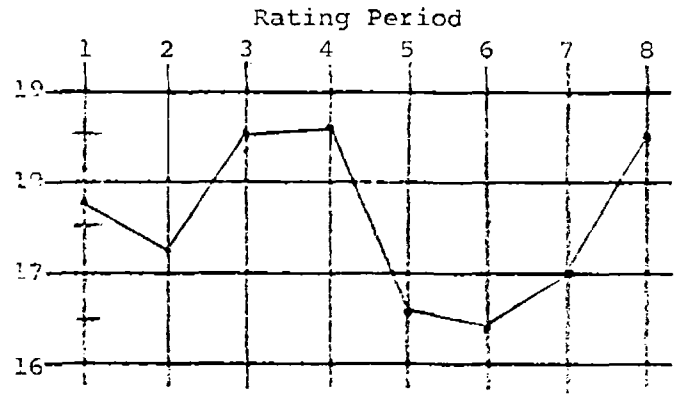
Because the goal of the Advancement School is to change attitudes and behavior of underachievers, counseling has been the basis for the treatment program. Counselors have worked with students in individual and group settings, and teachers have sought to incorporate counseling techniques in the classroom. The entire atmosphere of the Advancement School has

FIGURE 1. BEHAVIOR PROFILES SPRING 1970

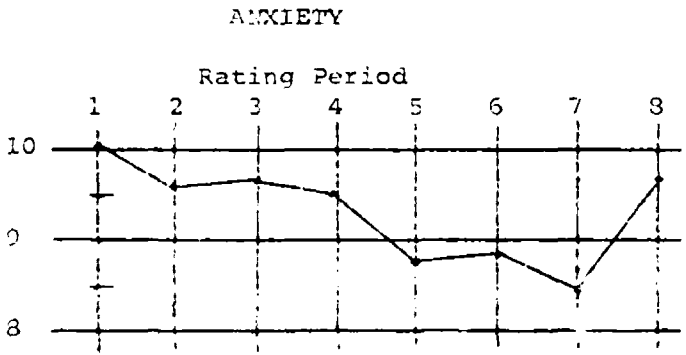
AGGRESSION



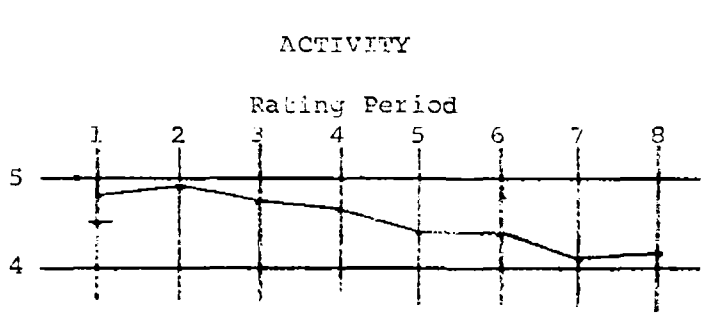
ALIENATION



ANXIETY



ACTIVITY



been one of empathy and acceptance in efforts to meet the emotional and academic needs of underachievers. No research had been done to determine the effectiveness of specific counseling approaches or to differentiate between the factors involved in creating the empathetic environment provided for students. Two studies carried out during the 1969-1970 school year were designed to begin answering the following questions:

1. Does individual counseling account for the positive changes in attitudes and behavior observed among students at the Advancement School?
2. Is the change among students the result of living and going to school in an empathetic environment --and not the result of individual or group counseling efforts?
3. Are other elements of the school program, specifically art and play, of equal value in effecting change in attitudes and behavior of students?

A. A Comparison of Counseling Approaches

Of the ninety-six boys enrolled in the 1970 spring term, thirty-six students received only "crisis counseling." No individual counseling sessions were scheduled for these students; their counselors met with them only when asked by the student or in the case of a crisis. Of these thirty-six students, twelve were randomly selected, and without their counselor's

knowledge, were assigned to a control group to test the effects of participating only in the regular instructional program. The remaining twenty-four students were involved in an experimental play therapy project.

Play therapy is based on the belief that verbal communication, particularly among students of elementary school age, does not always allow for real expression of feeling. Play therapy was begun at the Advancement School in the summer of 1969 when rising fourth- and fifth-grade boys attended the school and was found to be a valuable counseling approach. For the 1970 spring term, play materials suitable for boys of sixth-grade were added to the play therapy room.

Students involved in the play therapy project were randomly assigned to one of two groups: one group used the play therapy room with a counselor in the room to interpret to the student his behavior and feelings as expressed through play; a second group used the play therapy room with the counselor observing through a one-way vision mirror, but the counselor did not attempt to interpret behavior to the students.

The counseling project was thus designed to determine what differences would occur between students involved in play therapy, play without therapy, individual counseling, and no counseling.

Pre-test and post-test scores on the Tennessee Self Concept Scale, the IAR Scale, and the Semantic Differentials were used

to measure attitude change. Ratings of Advancement School teachers on the North Carolina Advancement School Student Behavior Inventory were used to measure behavioral change. Pre-test and post-test means and standard deviations on these measures are reported in Table 14; a comparison of change scores is reported in Table 15.

No significant differences among the four groups were observed on the Tennessee Self Concept Scale or the IAR. On the Semantic Differentials, views of teachers were significantly higher ($p < .10$) for the students who received individual counseling. Views of home were higher for the play therapy group ($p < .10$) and the control group.

The only significant behavioral differences occurred on the aggression and activity factors. On aggression, the group in individual counseling evidenced significantly less aggressive behavior at the end of the term than did the remaining three groups. On activity, students in individual counseling and the students in the control group did significantly better than those in play therapy and play only.

Implications. The results of the counseling project showed few differences among the groups studied. It would appear that, based on these results, the overall environment of the Advancement School was as important in effecting attitudinal and behavioral change as the various counseling techniques employed. An in-depth study of the Advancement School environment could

Table 14. A Comparison of Pre-Test, Post-Test Means and Standard Deviations for Students in Individual Counseling, Play Therapy, Play Only, and Control.

Variable	Individual Counseling (N=12)				Play Therapy (N=11)				Play Only (N=12)				Control (N=11)			
	Pre-test		Post-test		Pre-test		Post-test		Pre-test		Post-test		Pre-test		Post-test	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Tennessee Self Concept Scale:																
Self Criticism	51.3	8.5	53.4	12.3	46.6	9.1	50.0	13.1	50.4	5.5	49.2	6.6	53.7	14.0	51.0	2.7
Total Positive	42.9	12.1	47.1	12.4	40.1	7.4	44.7	14.6	41.3	9.5	45.7	11.9	40.9	10.9	44.9	11.3
Identity	44.3	17.2	50.3	17.1	40.1	9.5	40.7	17.6	41.0	11.7	45.5	19.3	41.8	13.5	46.3	13.6
Self-Satisfaction	47.5	12.1	53.0	12.7	46.2	7.9	46.7	13.5	45.7	9.7	50.8	12.7	45.9	13.2	48.5	13.6
Behavior	37.0	10.9	38.9	13.2	39.5	10.3	39.0	13.0	38.5	9.0	40.3	11.6	36.3	8.1	42.2	12.0
Physical Self	47.3	17.5	47.5	11.4	44.9	11.0	44.4	16.1	44.3	11.9	48.6	12.6	44.1	12.5	44.1	11.3
Moral-Ethical Self	37.6	12.6	40.2	10.4	34.8	8.0	37.4	16.1	37.0	10.5	38.5	8.6	35.7	12.6	39.3	11.5
Personal Self	43.0	11.7	52.4	10.8	42.5	10.4	44.0	11.9	46.1	10.4	50.3	14.6	45.4	10.2	49.0	14.5
Family Self	43.7	14.3	51.7	12.0	44.7	8.3	45.8	12.9	39.8	10.7	44.6	12.4	40.5	10.0	50.7	11.6
Social Self	44.6	13.7	46.4	13.0	42.7	9.0	43.9	12.5	45.8	7.2	48.4	11.7	44.0	7.3	47.1	8.3
IAR Scale:																
Positive	13.0	4.4	13.6	4.4	12.7	2.4	13.3	2.3	12.2	2.0	12.8	2.2	11.2	3.8	12.5	2.3
Negative	11.0	3.4	11.7	3.0	10.8	3.9	11.5	3.9	11.3	2.5	13.2	2.3	11.7	3.6	11.1	3.5
Total	24.0	5.6	25.4	5.0	23.5	4.9	24.8	5.7	23.5	3.8	26.0	3.9	22.9	6.8	23.5	5.3
Semantic Differentials:																
Me As I Am Now	41.0	8.3	46.3	6.9	38.0	6.3	40.5	6.7	39.3	4.9	40.5	6.6	41.4	6.6	43.7	9.0
Teachers	38.1	12.9	41.1	11.4	41.5	9.5	41.1	9.1	42.5	10.5	42.2	8.2	44.9	7.4	45.3	8.0
Home	46.0	7.3	44.8	8.3	35.4	11.7	42.6	9.8	41.3	6.6	41.2	7.6	40.4	7.9	45.5	5.9
School	41.8	7.6	42.9	9.5	38.9	5.2	39.6	8.7	38.9	7.1	39.1	7.5	38.0	7.3	41.3	10.3
Ideal Self	53.7	2.3	51.2	6.0	45.3	11.6	48.7	9.4	47.9	8.1	49.3	7.4	50.3	7.2	51.4	4.9
Student Behavior Inventory:																
Aggression	10.4	4.2	16.1	4.2	14.7	6.0	15.3	5.7	15.6	5.7	14.0	4.2	13.3	3.1	13.0	4.0
Anxiety	10.1	2.3	10.0	1.2	8.9	1.6	8.8	2.3	9.5	1.8	9.2	1.8	9.7	2.2	8.0	2.0
Alienation	19.4	4.4	19.4	6.3	18.1	6.2	19.4	5.9	14.8	3.8	17.6	6.4	16.9	5.5	16.7	4.8
Activity	6.1	1.4	4.8	1.3	4.6	1.9	4.5	1.2	4.6	1.8	4.3	1.8	4.4	1.5	3.2	0.9

TABLE 15. A Comparison of Change Scores for Students in Individual Counseling, Play Therapy, Play Only and Control Group.

VARIABLE	Individual Counseling (N = 11) $\bar{X}$	S.D.	Play Therapy (N = 11) $\bar{X}$	S.D.	Play Only (N = 11) $\bar{X}$	S.D.	Control (N = 10) $\bar{X}$	S.D.	F
Tennessee Self Concept Scale									
Self-Criticism	1.3	7.7	3.4	10.8	-1.2	6.9	-3.0	14.5	0.77
Total Positive	3.0	7.1	4.6	13.8	4.5	10.0	4.0	6.1	0.06
Identity	4.2	15.2	0.6	14.9	4.5	21.5	5.7	8.5	0.20
Self-Satisfaction	4.5	8.8	0.5	10.0	5.1	11.2	0.9	9.9	0.59
Behavior	1.3	6.7	2.5	11.3	1.8	8.0	6.9	9.3	0.84
Physical Self	-1.0	13.8	-0.5	12.2	4.4	15.3	0.2	3.1	0.44
Moral-Ethical Self	1.8	9.7	2.5	13.2	1.5	8.5	3.2	8.8	0.06
Personal Self	8.4	9.3	1.5	12.5	4.2	12.3	3.6	11.1	0.69
Family Self	4.5	11.4	1.1	8.7	4.8	11.1	10.4	8.1	1.55
Social Self	1.0	10.8	1.2	13.9	2.5	11.4	2.9	8.3	0.08
IAR Scale									
Positive	0.6	2.5	0.8	2.6	0.5	2.5	1.3	4.5	0.12
Negative	0.5	3.2	0.7	3.3	2.2	3.4	-0.6	3.4	1.32
Total	1.1	1.4	1.5	5.5	2.7	4.9	0.6	7.5	0.31
Semantic Differentials									
Me Now	5.3	8.7	2.5	5.6	0.8	5.6	2.8	5.9	0.85
Teachers	8.0	8.4	-0.4	10.7	-0.8	12.8	0.8	3.1	*2.02
Home	-1.2	7.2	7.3	10.4	-0.8	11.0	5.6	7.3	*2.44
School	1.1	7.8	4.7	8.6	-0.4	11.2	3.5	10.7	0.58
Ideal	-2.5	6.7	3.5	9.6	0.4	10.7	0.7	4.4	0.94
Student Behavior Inventory									
Aggression	-3.7	5.9	0.5	3.3	-1.6	5.4	-0.3	3.5	**1.67
Anxiety	0.0	2.5	-0.1	2.3	-0.3	1.1	-1.7	1.7	1.47
Alienation	-0.6	5.7	1.3	5.9	2.8	5.9	-0.2	6.6	0.70
Activity	-1.2	1.3	-0.2	1.1	-0.3	0.9	-1.2	0.9	**2.83

** $p < .25$ * $p < .10$

prove useful in isolating those factors in this environment which contribute to these changes.

The counseling study also points to the need for consideration of the value of play within the school setting as a counseling tool.

B. Art Counseling Study

Analysis of data obtained during the 1968 summer term with rising sixth- and seventh-grade boys indicated that art experiences had made a significant contribution to improvement of self-concepts. Students who elected art as a subject during that term at the Advancement School showed statistically significant gains in self-concepts over those students who had not elected art.[14] It was recommended that further study of art as a counseling technique be carried on

A followup study was carried out during the fall of 1969 to determine if the improvement in self-concepts on the part of the art students had remained stable fourteen months later, and if the differences between art students and students not taking art still existed.

Thirty boys who were rising seventh-graders at the time they attended the Advancement School were subjects of this study. Fifteen of the boys had taken art during the 1968

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[14] The North Carolina Advancement School Research Report, Summer 1968, Winston-Salem, North Carolina, January 1969.

summer term (the experimental group) and fifteen boys were selected randomly from those not taking art during the summer term (the control group). Home school counselors were asked to administer the Tennessee Self Concept Scale to these thirty students. The scores obtained through this followup were then compared with pre-test and post-test scores of students in the experimental and control groups.

Table 16 presents a comparison of the means and standard deviations on the pre-test, post-test, and followup occasions for the two groups.

A study of Table 16 reveals that both the experimental and control groups entered the Advancement School with self-concepts in the low 40's and high 30's (based on standard score norms with $\bar{X} = 50$, S.D. = 10). After treatment the students taking art obtained self-concept scores in the high 40's and low 50's, and these scores remained stable during the fourteen months students were back in the home school. The self-concept scores of students not taking art remained essentially unchanged after treatment at the Advancement School and remained relatively stable over the next fourteen months

The results of this study clearly indicate that the art experiences of students who attended the 1968 summer term were effective in bringing about improved self-concepts (a primary objective of the NCAS program) and that this improvement

TABLE 16. Means and Standard Deviations for Experimental and Control Groups for Ten Criterion Variables on the Occasions of the Pre-Test, Post-Test, and Follow-up.

	Art Counseling (N = 15)						Control (N = 15)					
	Pre-Test		Post-Test		Follow-up		Pre-Test		Post-Test		Follow-up	
Variable	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total Positive	41.20	14.87	51.67	14.70	52.71	10.19	46.47	12.92	42.87	13.44	41.33	9.47
Identity	38.53	13.05	48.07	13.84	53.79	14.07	44.47	16.40	41.47	19.10	42.13	13.22
Self Satisfaction	46.47	15.50	58.86	15.46	49.36	11.27	48.87	12.31	44.53	11.71	42.07	8.56
Behavior	39.60	15.21	48.67	15.04	48.43	14.24	44.20	11.18	42.00	11.87	42.13	10.82
Physical Self	45.67	13.95	56.33	15.74	54.86	11.16	48.33	14.03	46.67	18.53	48.80	12.94
Moral-Ethical Self	37.37	15.14	46.93	14.72	42.21	14.26	39.67	12.76	41.27	8.84	39.53	10.91
Personal Self	44.27	15.96	57.40	15.23	53.29	11.77	51.27	12.84	47.00	17.28	45.40	8.68
Family Self	43.73	14.38	48.87	12.57	47.57	14.82	46.53	12.02	45.20	12.36	42.73	11.44
Social Self	39.40	12.91	48.93	14.31	54.07	13.83	43.00	11.86	40.47	8.70	42.13	7.42
Self Criticism	44.60	7.91	47.60	6.91	48.29	8.75	46.53	6.81	47.33	4.79	51.40	5.68

Note: One subject was not located for the art counseling group on the occasion of the follow-up; the N for the follow-up for the art counseling group was therefore 14.

remained stable over the next fourteen months.[15]

Implications. The study reported above indicates that schools would do well to consider art as a counseling technique, particularly in the elementary school. Art can be viewed as a counseling tool in that it provides a non-threatening method to approach children. In addition, art products can be used to elicit verbal expression of feelings from younger children who tend to lack verbal skills essential in a traditional counseling setting.

The art program of the Advancement School, as carried out in the summer of 1968, was designed to allow students to select materials with which they wished to work and to use these materials for creative expression of ideas rather than in set ways. Emphasis was also placed on short-term projects which could be easily completed and thus provide success experiences for students. There was no grading of the finished art products; students were encouraged to evaluate their own work. The art teacher emphasized that each student was capable of contributing something unique and valuable. The total art experience was aimed at providing an atmosphere for acceptance and expression of feelings.

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[15] This study of art experiences as they affect self-concepts is the subject of an article by Kinnard White and Richard F. Allen, "Art Counseling in an Educational Setting: Self-Concept Change Among Pre-Adolescent Boys," to be published in Journal of School Psychology, May, 1971.

The art study provided a comparison between students who were involved in the regular NCAS individual counseling program and students who not only had individual counseling, but art. The latter group clearly improved in self-concepts more than did the former, and thus provided dramatic evidence of the need for more opportunities to express their feelings in a less structured atmosphere.

Summary. The two counseling studies conducted with underachievers during the 1969-1970 school year provided statistical evidence that techniques other than individual counseling can be instrumental in effecting positive attitudinal and behavioral change. Art and play were shown to be effective counseling tools. In addition, an environment characterized by empathy and acceptance of the individual was found to be as effective as any counseling technique.

IV. READING RESEARCH

Previous research conducted by the Advancement School in the area of science indicated that a non-structured learning situation enabled certain students to progress more than a teacher-directed or conventional class. In project conducted in the fall of 1968[16], students were classified as "external"

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[16] Kinnard White and James Lee Howard, "The Relationship of Achievement Responsibility to Instructional Treatments," Journal of Experimental Education, 39: 78-92, Winter 1970.

learners or "internal" learners on the basis of scores obtained on the Intellectual Achievement Responsibility (IAR) Scale. Boys who attributed responsibility for achievement to themselves (high scorers on the IAR Scale) were classified "internals," while boys who did not accept that they were responsible for their achievement (low scorers on the IAR Scale) were classified "externals." The science research indicated that internals achieved equally well regardless of treatment; externals, however, showed greater achievement in the non-structured student-directed group. The instructional method in which the student took command of the learning situation resulted in superior achievement for the external student.

The Advancement School attempted during the 1970 spring term to duplicate this research in a skill area--reading. Whereas science had been an elective for students, reading was a required subject.

Seventy-five students needing remedial work in the area of reading were the subjects of this study. These seventy-five students were randomly divided into four teacher-directed classes (control group) and four self-directed classes (experimental group). The two reading teachers on the Advancement School staff each taught two control classes and two experimental classes.

The students in the control classes followed a teacher-prescribed program in reading based upon the individual needs

of each student. The teacher evaluated each student's work and chose those activities for him which would best help him with his reading problems.

Students in the experimental classes were allowed to decide which of the reading problems they wished to attack and to select the materials and activities in which they wished to participate. The teacher served as a resource person and gave help only when the student asked for it. Students in the experimental classes evaluated their own performance and progress.

The materials and activities available for reading students were the same for both experimental and control groups.

Students in both groups were tested at the conclusion of the term, with complete post-test data available for 72 students--33 control students and 35 experimental students. The Gates Reading Survey - Vocabulary and Comprehension sections were used to determine reading achievement. Table 16 presents a comparison of the results for the two groups.

As can be seen in Table 17, there was no significant difference between achievement of the students in the control and experimental groups. A summary of achievement by race indicated that white students performed higher than non-white students regardless of treatment group.

An analysis of achievement was made on the basis of the IAR scores of students to determine whether there were differences

TABLE 17. Mean Scores on the Gates Reading Survey for Experimental and Control Groups in the Reading Research Project.

	N	EXPERIMENTAL	N	CONTROL
Vocabulary:				
White	26	24.0	20	25.7
Non-White	12	18.2	14	18.8
Total	38	22.2	34	22.9
Comprehension:				
White	26	19.9	20	21.2
Non-White	12	14.8	14	14.3
Total	38	18.3	34	18.3

between internal and external learners. Results of this analysis are reported in Table 18. Students classified as internals tended to perform somewhat better in the control group, while students classified as externals tended to perform better in the experimental group. (These results were not statistically significant.)

Another analysis was made to determine whether instructional treatment had any effect upon behavior. The student ratings by Advancement School teachers on the North Carolina Advancement School Student Behavior Inventory were used as a measure of behavior. The results of this analysis are reported in Table 19. Students who were classified as internal learners tended to show more alienated behavior when placed in the experimental group, while students termed external learners tended to improve in this behavior in the experimental group. In the other behavior categories, no significant differences occurred.

The reading study supported previous research showing that students who were in a self-directed class and were given the opportunity to structure their own learning experiences achieved equally as well as those students in the teacher-directed or traditional classroom. The belief that external learners do best in a non-structured learning situation was also supported; however, the study did not support the hypothesis that internals learn best in the self-directed class.

TABLE 18. Mean Scores on the Gates Reading Survey for Students Classified Internals (High Scorers on the IAR Scale) and Students Classified Externals (Low Scorers on IAR Scale.)

	N	INTERNALS	N	EXTERNALS
Vocabulary				
Control	16	23.5	17	21.9
Experimental	17	20.7	18	23.3
Comprehension				
Control	16	19.6	17	16.9
Experimental	17	19.3	18	17.4

TABLE 19. A Comparison of Behavior Ratings for Internal and External Learners in the Experimental and Control Groups.

	INTERNALS		EXTERNALS	
	Experimental (N = 17)	Control (N = 16)	Experimental (N = 18)	Control (N = 17)
Aggression	9.9	9.6	9.9	9.0
Anxiety	6.2	4.7	4.7	4.6
Alienation	15.6	10.1	12.1	16.6
Activity	3.2	2.4	3.1	2.9

The Advancement School will continue to experiment with the self-directed approach within the classroom. Further efforts will be made to determine whether certain characteristics may dictate a particular type of instructional program for students.

V. LEARNING MODALITIES

Much has been written during the past decade concerning the relationship between learning style and instructional methodology. Most of these writings have been theoretical in nature or so sophisticated that the practical application of learning modalities has been of little value to classroom teachers. Investigation of the literature has revealed several unanswered questions:

1. Can the predominant learning style of the child be effectively measured, using an instrument easily administered and interpreted by teachers?
2. Can this information then be used to design learning experiences utilizing the predominant modality to insure success in learning?

A research project was initiated at the North Carolina Advancement School during the fall of 1969 in an attempt to provide answers to the above questions. An instrument was constructed to measure kinesthetic, auditory, and visual modalities. The principle used in designing these three tests was the same. The test items were designed to assess the

degree to which a child could discriminate likenesses and differences between sets of kinesthetic, auditory, and visual stimuli. Forty items were constructed for each modality.

This form of the modalities test was administered to ninety sixth-grade underachieving boys who attended the Advancement School in the spring of 1970. Scores for each sub-test were converted to T-scores, and an item analysis was applied to the instrument. In this way, the number of items for each test was reduced to ten, with the ten items being selected according to their discriminating power. In this manner, it was determined that the kinesthetic test discriminated extremely well, the auditory test discriminated fairly well, and the visual test discriminated not at all.

The kinesthetic and auditory tests are currently being prepared for standardization, while the visual test is being reconstructed.

Application of Learning Modalities to Instruction. Although there was no way to identify students whose predominant mode of learning was kinesthetic, efforts were made during the 1970 spring term to design a mathematics program which would take into account the fact that many students learn kinesthetically Students were assigned randomly to either a control class or experimental class. The control classes were similar to the traditional public school class, with the use of textbooks and other computational skill materials. Instruction was individual-

ized with students progressing from one skill to another depending on their individual ability. In the experimental class (known as the kinesthetic class), students solved mathematical problems and developed fundamental skills with the aid of materials such as rods, plastic numbers, play money, and other manipulative devices. Instruction in the kinesthetic class was also individualized, with the students working at their own levels and progressing at their own speed.

A post-test in mathematics achievement was administered at the end of the term, with no differences found between the control and experimental groups.

While statistically no differences occurred, observations by the staff led to the conclusion that many students found math to be more interesting through the use of the kinesthetic materials. The math department has continued the kinesthetic program for another year. When the learning modalities test can be used to identify kinesthetic learners, students will be able to participate in a mathematics program designed to consider their learning style.

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The research program for the 1969 fall term and the 1970 spring term of the North Carolina Advancement School was designed to further describe the phenomenon of underachievement and to implement remedial programs for the underachiever. Ninety-six sixth-grade boys, identified as underachievers, attended each term. For the purpose of this study, the underachiever was defined as any student with average or above average intelligence who was achieving one or more years below expectancy as measured by standardized tests, academic record, and teacher observation. Students were selected randomly from qualified applicants nominated by schools throughout the state of North Carolina.

The research program for the 1969-1970 academic year was designed to answer the following questions:

1. What are the academic, psychological, and behavioral characteristics of sixth-grade underachieving boys?
2. How do these characteristics compare with typical students of the same grade in the North Carolina public schools?
3. What treatments are effective with sixth-grade underachieving boys and how do these treatments differ from treatment prescribed for underachievers

of grades four, five, seven, and eight who have attended the Advancement School?

I. SUMMARY

Ninety-six sixth-graders were admitted for the 1969 fall term and ninety-six sixth-graders for the 1970 spring term. All students participated in a residential and instructional program designed to provide an empathetic environment for learning. The instructional program consisted of a humanities block emphasizing the role of counseling, a learning center for development of reading and mathematics skills, and an exploratory curriculum allowing exploration of special interests. Instruction was individualized to meet the needs of each student.

Design of the Study. The research design was carried out through an overall research program and through individual research in the counseling and instructional areas. Specific research projects included:

1. A post-test control group comparison for the 1969 fall group and a pre-test, post-test comparison for the 1970 spring group on achievement, attitudes, self-concepts, and responsibility for learning.
2. Comparisons of underachievers of grades six and seven with typical public school students of the same grades.

3. A comparison of counseling approaches and studies to determine the value of art and play in the school program.
4. The refinement and standardization of the North Carolina Advancement School Student Behavior Inventory, a scale for measuring overt classroom behavior of students.
5. The development of an instrument to classify learning modalities.
6. Development of a kinesthetic mathematics program.
7. Research comparing a self-directed, unstructured reading program with a teacher-directed and structured program.

II. CONCLUSIONS

The following conclusions resulted from this study:

1. The students attending the 1969 fall term did not evidence the positive gains on achievement, attitudes, self-concepts, and achievement responsibility that were observed for the 1970 spring group. On these measures, the 1969 fall students did not differ significantly from the control group. The lack of measurable success for the 1969 fall term might be due to several factors--the unique testing situation, the difficulty of the Advancement School staff in

implementing a team teaching situation, or an atypical control group. The composition of the control group was questionable: only twenty-six students were available as controls and approximately one-half of these were boys who entered the Advancement School but returned home within the first two weeks. In addition, the racial composition of the group and the number of students repeating grades were not representative of the Advancement School population.

2. Students attending the 1970 spring term of the Advancement School evidenced significant gains on all measured variables from the pre-test to the post-test occasion. Gains in overall self-concepts, attitudes toward home, school, and teachers, and achievement responsibility were all significant at the .01 level of confidence. Measures of behavior on a pre-test, post-test basis indicated that this group evidenced a significant decrease ($p < .01$) in classroom behaviors found among underachievers. A comparison of the 1970 spring term students showed that Advancement School students entered the school below the norm in most areas. At the conclusion of the term, Advancement School students were at or above the norm on almost all measures.

3. Data obtained through a normative study provided information on typical students of grades six and seven. These data were compared with the sixth- and seventh-graders who had attended the Advancement School. The results of this comparison indicated that underachievers entering the Advancement School had lower self-concepts, more negative views toward home, school, and teachers, and assumed less responsibility for their own learning than typical students. After attending a term at the Advancement School, both sixth- and seventh-grade underachievers compared favorably with the norm group on all these measures.
4. Results of the North Carolina Advancement School Student Behavior Inventory standardization indicated that underachievers evidence more extreme behavior in the classroom than typical students. Four distinctly different categories of behavior were identified and labeled alienation, aggression, anxiety, and activity. Alienation was found to be the behavior category most discriminatory on the inventory.
5. A study of counseling approaches showed that both art and play are valuable in allowing students opportunities to express their feelings. In comparing four groups of students at the Advancement

School in the spring of 1970 who were participating in a counseling project, no differences were observed to indicate that play therapy, individual counseling, or play alone were any more effective in creating positive change than mere participation in the residential and instructional program. Another study completed in the fall of 1969 indicated that students involved in an art counseling program had more improved self-concepts than students given individual counseling but no art experiences. When considered together, these counseling studies indicate that the individual counseling interview might be de-emphasized if students are in an empathetic environment such as that at the Advancement School. The studies further substantiated the belief that non-verbal communication, such as in art and play, can be effective therapeutic settings.

6. An instrument developed by the Advancement School to measure learning modalities of students discriminated between kinesthetic and auditory learners; however, the visual part of the test was non-discriminatory.

7. An instructional program in mathematics, designed to use only kinesthetic materials, resulted in math achievement equal to that resulting from a more traditional mathematics program. Students were assigned randomly, rather than on the basis of their learning style.

8. A non-structured student-directed approach to the teaching of reading resulted in achievement equal to that in a more structured, teacher-directed approach. Students identified as external learners achieved more in the student-directed class, while internal learners performed better in the teacher-directed class.

III. RECOMMENDATIONS

The following recommendations are based on results from the research described in this report:

1. Further research should be conducted with sixth-grade underachievers for at least one additional term. Emphasis should be placed on further differentiating between the underachiever and the typical student of grade six, as well as to the development of remedial programs.
2. Additional research should be undertaken with underachievers of grade seven. Only rising seventh-graders or seventh-graders not yet enrolled in the junior high school have attended the Advancement School. Data obtained through the normative study on seventh-grade boys should be compared with a group of underachievers of the same grade.
3. Further efforts to identify the potential underachiever

should be undertaken. The North Carolina Advancement School Student Behavior Inventory shows promise as an instrument to aid in identifying the underachiever before the onset of severe academic problems.

4. Further work should be done in designing specific treatments for students, taking into account different behavioral characteristics.
5. Efforts to identify the dominant learning modality of students should be continued. The development of an instrument to classify learning modalities would allow teachers to consider the dominant modality of a student in designing a program for him. Such an instrument might also determine whether underachievers learn differently than the typical student.
6. The kinesthetic mathematics program should be considered for students whose dominant learning modality is kinesthetic.
7. Counseling approaches should be further studied with less emphasis placed on the individual counseling interview and more emphasis placed on other areas of the school program which allow opportunities for students to express feelings and enhance self-concepts.
8. The environment provided for students by the Advancement School should be carefully studied and efforts

made to determine specific factors which contribute to an empathetic environment. The student-teacher relationship should be considered, with particular emphasis given to a study of teacher behaviors. The possibility of working with day students should also be considered, since it is necessary to determine what effects the residential program has on the total school environment. The study of the Advancement School environment should focus on defining differences existing between the Advancement School and the typical public school.

9. The Advancement School should begin to place more emphasis on work with public schools of the state in an effort to implement programs based on the findings of the school. It is recommended that summer sessions be used for workshops with teachers and administrators from public schools, and that the summer program for students be discontinued.

10. Continued evaluation of the Advancement School program for students should be carried out through periodic followups of former students.

BIBLIOGRAPHY

Allen, Richard F., "Behavior of Students Redefined," in The North Carolina Advancement School: Underachievement Redefined, March, 1970.

Allen, Richard F., Ernestine Godfrey, and The North Carolina Advancement School, The North Carolina Advancement School Student Behavior Inventory, Winston-Salem, N. C., 1969.

Crandall, Virginia, W. Kathovsky, and S. Preston. "Motivational and Ability Determinants of Young Children's Intellectual Achievement Behaviors." Child Development, 33: 643-661, 1962.

Fitts, William H. Tennessee Self Concept Scale. Nashville: Counselor Recordings and Tests, 1965.

The Gates Reading Survey (revised). Columbia University: Bureau of Publications, 1960.

Howard, James Lee and Kinnard White, 'Role Failure and Self-Concept Among Elementary School Children," submitted for publication, 1971.

Intelligence, Achievement, Self-Concepts, and Attitudes Among 1216 Typical Sixth- and Seventh-Grade Students in Fourteen North Carolina Public Schools, The North Carolina Advancement School, Winston-Salem, North Carolina, November, 1970.

Jastak, J. F., et. al. Wide Range Achievement Test, Wilmington, Delaware: Guidance Associates, 1965.

The North Carolina Advancement School Research Report, Spring, 1968, Winston-Salem, North Carolina, August, 1968.

The North Carolina Advancement School Research Report, Summer, 1968, Winston-Salem, North Carolina, January, 1969.

The North Carolina Advancement School Research Report, Fall Term, 1968, and Spring Term, 1969. Winston-Salem, North Carolina, October, 1969.

The North Carolina Advancement School Research Report, Summer, 1969. Winston-Salem, North Carolina, January, 1971.

Osgood, C. E., G. Soci, and P. Tannenbaum. The Measurement of Meaning. Urbana, Ill.: University of Illinois Press, 1957.

White, Kinnard and Richard Allen, "Art Counseling in an Educational Setting: Self-Concept Change Among Pre-Adolescent Boys," to be published in J.Sch.Psy., May, 1971.

White, Kinnard and James Lee Howard, "The Relationship of Achievement Responsibility to Instructional Treatments," Journal of Experimental Education, 39: 78-82, Winter, 1970.

A P P E N D I X

TABLE 20

DESCRIPTIONS OF THE SUB-SCALES
ON THE TENNESSEE SELF CONCEPT SCALE

1. Self-Criticism. This scale consists of mildly derogatory statements that most people admit as being true of them. Individuals who deny most of these statements are probably overly defensive and tend to deliberately present a favorable picture of themselves. Higher scores tend to indicate a normal openness and capacity for self-criticism.

2. Total Positive. This scale reflects the over-all level of self-esteem. Persons with high scores tend to like themselves, feel that they are persons of value and worth, have confidence in themselves, and act accordingly. Persons with low scores are doubtful about their own worth, see themselves as undesirable, often feel anxious, depressed, and unhappy, and have little faith or confidence in themselves.

3. Identity. This scale assesses how the individual sees himself.

4. Self-Satisfaction. This scale assesses the way an individual describes how he feels about the self he perceives. In general, scores reflect the level of self-satisfaction or self-acceptance.

5. Behavior. This assesses what the individual says he does or how he acts, i.e., a measure of the individual's perception of his own behavior.

6. Physical Self. Assesses the person's view of his body, his health, and his physical appearance.

7. Moral-Ethical Self. This scale assesses the individual's perception of his being a "good" or "bad" person, and his moral worth.

8. Personal Self. An assessment of the individual's sense of personal worth and his general feelings of adequacy as a person.

9. Family Self. This scale measures the person's feelings of adequacy, worth, and value as a family member.

TABLE 20 (Continued)

10. Social Self. Scores on this scale reflect the person's sense of adequacy and worth in his social interaction with other people in general.

11. Distribution. Scores on this scale may be interpreted as a measure of the certainty about the way a person sees himself. High scores mean that the individual is very definite about the way he sees himself, while low scores mean just the opposite.