

ACADEMIC ACHIEVEMENT
AT NEW DOMINION SCHOOL-GIRLS' PROGRAM

A SUMMARY

Standardized achievement tests have been used to measure academic progress of students at New Dominion School since the Boys' Program was started in 1976, and a number of reports that document positive outcomes are available. This is the first study of academic progress at New Dominion School-Girls' Program, which was opened in 1996. Results reported herein are for the 142 girls who completed the program from its start-up through 2002.

The median age of this group of students when they entered the program was 15 years 6 months, which would place them in the second half of the 9th grade if they had been achieving at a normal rate. Their entry scores on the six subtests of the Woodcock-Johnson Revised Tests of Achievement (WJ-R ACH) showed considerable variability. One reading subtest showed a group mean of beginning 9th grade while the other subtest scores were at beginning 10th grade. Math scores were lower with one subtest at 8th grade 2 months and the other at beginning 9th grade. The Written Language scores ranged from 6th grade 6 months to 9th grade 4 months.

Students began formal academic work after they had adapted to group living and showed progress in managing their emotions and behavior. During this two to three month period, they received experiential education in their groups to maintain academic skills. Once in the classroom, students received individualized instruction so they could work at their own level and pace.

Group differences between test scores achieved on entry and those attained at the time of discharge were found to be highly significant ($p < .001$). Only once in 1,000 times would this result be obtained by chance. The Rate of Progress Index showed overall gains significantly greater than one month for each month in the program, which would be the expected rate of gain for normal students. Yet these gains were produced by a group of special students who had been sent to a residential facility for treatment and special schooling and who had begun formal classes only two to three months after admission. On two of the six subtests, the Rate of Progress showed gains greater than two months for each month in residence, and one subtest indicated three months gain for every month in the program. As might be expected in a group of special students, there was considerable variability in the data and not all students progressed equally.

Other evidence of academic success is seen in the successful completion of set goals. Twenty-four of the girls during this time period studied for the General Educational Development (G.E.D.) examination, and 19 succeeded in gaining that certificate. This is a 79% passing rate. In addition, 10 students met the requirements for a high school diploma and went through a graduation ceremony on campus.

A complete report with references may be obtained from New Dominion School, P. O. Box 540, Dillwyn, VA 23936.

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INTRODUCTION

New Dominion School was founded in 1976 on 550 acres of fields and woods in Buckingham County near Dillwyn, VA. For the first 20 years it provided services only to boys, but in 1996 a program for girls was opened on adjoining land. Both programs provide treatment to adolescents who have emotional problems, behavior disorders, and/or learning disabilities. Focusing on group process within a wilderness camping setting, the program emphasizes individual responsibility, emotional growth, building of relationships, and problem solving. Students live in groups of 10 to 12 with two adult Group Leaders who work 24-hour shifts for five days in a row. Members of each group plan recreation and work projects, resolve interpersonal conflicts as they arise, and get help with the problems that brought them into treatment.

Only after they have adapted to group living and show progress in managing their emotions and behavior do students begin classes in the academic program. This period of experiential education, which ranges from two to three months, also helps students maintain their academic skills while they prepare to return to the classroom. Activities include: Writing up plans for group projects; preparing menus for the two days of the week that the group cooks meals at their campsite, staying within a budget; designing and measuring for construction projects; using maps and planning group trips; writing poems, articles, and creating art work for the school newsletter; reading newspapers to present current events before the whole student body in the Lodge; writing songs and scripts for talent shows; using the library as a resource; and participating in all-day educational trips to historic sites, museums, state and nation's capitals.

Before she can begin formal schooling, each girl must demonstrate a desire and commitment to her education by completing a portfolio and having it approved by the school Principal. This entails reading a book, writing a neat and legible book report, and writing out a full day's schedule for her group along with a menu for a group meal based on a fixed budget and a price list of available foods. After the portfolio is approved, the student has a school conference to discuss past school experiences, review school rules, and set a long-term goal for her education. The New Dominion School--Girls' Program (NDS-Girls' Program) also offers art class once a week for all students and teaches home economics skills such as cooking, cleaning, and maintaining both shared living quarters and personal areas at campsites.

Students enter the academic program with one class and receive individualized instruction so they work at their own level and pace. Initial assignments are based on results of the academic tests that are reported in this study as well as an evaluation of the portfolios the girls have submitted. Classes are gradually added up to a total of six as the student adapts to the classroom setting and makes progress in the program. Most of the girls prepare to return to public or private school, while some earn the General Educational Development (G.E.D.) certificate and a few meet requirements for a high school diploma.

NDS-Girls' Program is licensed by CORE, a licensing body of the Commonwealth of Virginia, and is accredited by the Southern Association of Colleges and Schools (SACS) and the Virginia Association of Independent Schools and Educational Facilities (VAISEF). It serves a maximum of 48 students at a time in four groups with 24 professionals and paraprofessionals on staff. This study covers the start-up of the NDS-Girls' Program in the Spring of 1996 through 2002. A copy of this report is available from New Dominion School, P. O. Box 540, Dillwyn, VA 23936.

ACADEMIC PROGRESS

Subjects.

The subject pool includes 192 girls who were enrolled in the program from its beginning in 1996 through 2002. The sample on which this study of academic progress is based is composed of the 142 girls (74%) who had completed the program and thus had been tested both before and after treatment. The median age at first testing was 15 years 6 months with an age range of 11 years 6 months to 17 years 10 months.

Measures. Six subtests of The Woodcock-Johnson Revised Tests of Achievement (WJ-R ACH) (Woodcock & Johnson, 1989) were administered to each student within 30 days of her admission to the NDS-Girls' Program and were repeated when she was within 30 days of discharge. The subtests measured the following skills: *Reading*—Letter-Word Identification and Passage Comprehension; *Math*—Calculation and Applied Problems; *Written Language*—Dictation and Writing Samples. All tests were administered by a teacher in the school building.

The average time between the two administrations was 12.46 months with a range of 4.9 months to 19.72 months. This indicates that the average length of stay in the program was approximately a year and one half during the time period of the study.

Data Analyses.

As a measure of academic progress, Standard scores on the first testing were subtracted from scores on the second testing to determine the direction and magnitude of change for each of the six subtests of the WJ-R ACH. A repeated-measures Analysis of Variance (ANOVA) then was used to test for significance of the differences found. Subjects who had scored at or above a grade equivalent of 13 on initial testing were dropped from the data analysis for the subtest in which this occurred. This number ranged from 7 to 43 on various subtests.

Actual Gains were compared to Expected Gains in grade level between testings by assuming that an average student would progress one month for each month she was in the program. A Rate of Progress Index was constructed for each student in the sample by subtracting her grade equivalent score at initial testing from that achieved on her final testing, multiplying by

12, and dividing by the number of months between testings. To determine if the Rate of Progress Index Means were significantly different from 0 or from 1, either a 0 or a 1 was subtracted from the mean Rate of Progress and the result was divided by the standard error of the mean. These values then were compared to a table of t values to determine their significance. Only students who had grade equivalent scores below 13 at initial testing were included in the analysis for each subtest. Correlations between Rate of Progress and age at first testing were made to determine if the age of a student at entry made a difference in her academic progress.

A comparison of initial test scores of girls who had completed the program with those of students who left early was made to determine if there were significant differences between the groups in terms of age or achievement scores at entry.

Results.

Entry Levels of Achievement. Grade Equivalent Scores achieved at initial testing by the total pool of 192 girls on the WJ-R ACH showed considerable variability among subtests. (See Table 1 below.) With a median age of 15 years 6 months, this group of girls would be expected to be achieving in the second half of the 9th grade. In regard to the measures of *Reading*, the Mean of the Letter-Word Identification subtest was at the beginning level of the 9th grade, but the Passage Comprehension scores were at the beginning of the 10th grade. *Math* scores were lower with the Mean for Calculation falling at 8th grade 2 months and the Mean of the Applied Problems subtest at the beginning of the 9th grade. Achievement on the *Written Language* subtests showed an even greater spread with Dictation showing a Mean at 6th grade 6 months and the Writing Samples scores at approximately the expected level, 9th grade 4 months.

Table 1

Grade Equivalent Entry Scores

<u>Variable</u>	<u>Mean</u>
<i>Reading</i>	
Letter-Word Identification	9.00
Passage Comprehension	9.98
<i>Math</i>	
Calculation	8.18
Applied Problems	9.01
<i>Written Language</i>	
Dictation	6.50
Writing Samples	9.33

When the group of 50 girls who had not completed the program was compared with the group of 142 who had finished, only one subtest showed significant differences between the two groups. The group of girls who did not complete the program scored significantly lower at entry on Letter-Word Identification. This group also scored lower on Writing Samples, but the differences did not reach significance. Scores on none of the other achievement measures differed between the two groups of girls, and age at first testing was not significantly different.

Academic Progress. Differences between scores from the first and second testing were in the positive direction for all subtests, and all of the differences were significant at the .001 level. This level of significance means that only once in 1,000 times would this result occur by chance.

The Rate of Progress Index showed that students overall had progressed significantly more than would be expected for average students during the length of time spent in the program. Table 2 below lists the group Means for the six subtests. Each Mean would be 1 if the students had progressed only one month for each month in the program.

Table 2

Rate of Progress Index

<u>Variable</u>	<u>Mean</u>
<i>Reading</i>	
Letter Word Identification	1.84
Passage Comprehension	3.01
<i>Math</i>	
Calculation	2.41
Applied Problems	1.49
<i>Written Language</i>	
Dictation	1.48
Writing Samples	2.56

As can be seen from this table, gains were greater than one month for all of the subtests. Two of the measures, Calculation and Writing Samples, showed more than two months gain for each month that students were in residence, and Passage Comprehension scores improved three months for every month in the program. All of the differences were found to be statistically significant at either the .05, .01, or .001 level.

The Rate of Progress was influenced by the age of the student when she first came to NDS-Girls' Program on only two of the measures, with older students achieving a higher Rate of Progress. The effect of age on the Calculation measure reached significance at the .05 level, while Letter Word Identification showed a trend in that direction. Rates of Progress on the other measures did not relate to age at initial testing.

It is important to note that there was considerable variability in the Rate of Progress Index among the group members, and not all students progressed equally. This is clearly indicated by the fairly large Standard Deviations on each of the subtests.

Discussion.

Since this is the first study of academic progress of students in the NDS-Girls' Program, results are discussed mainly in terms of what would be expected of normal adolescents. Some comparisons are made, however, with findings of the most recent study of academic achievement in the NDS-Boys' Program, which treats similar adolescents. That study covered the period of 1995-2000. (Little, Note 1)

The median age of 15 years 6 months for students in this study closely approximated the median age of 15 years 7 months of boys in the last study of academic progress at the NDS-Boys' Program. Entry level test scores on the WJ-R ACH tended to be higher for the girls than for the boys, but the Rate of Progress Index showed considerable variability among subtests. For example, on the Applied Problems subtest the boys made greater progress than did the girls during the time they were in the program. This may have to do with the fact that the boys' scores on this subtest were lower at entry and they were able to catch up. On the other hand, girls increased their scores on Passage Comprehension slightly more than did the boys, even though the girls came into the program with higher scores on that subtest. One may speculate that girls tend to read more and hence improve their reading skills more quickly.

Findings of this study show that the group of 142 students who completed the program made significant gains in academic achievement as measured by the WJ-R ACH. This occurred even though the girls did not begin formal academic work until they had been in the program two to three months, and they began with just one class.

The Rates of Progress were significantly greater than one month for each month in the program, the rate that would be expected of average students. Two of the six measures of academic achievement showed gains greater than twice the normal rate, and a third measure had gains more than three times greater than what would be expected. This progress occurred in spite of the fact that these are special students who were sufficiently dysfunctional to be sent away from their homes and local schools to a residential facility where they could get treatment and special schooling. Figures on prior school adjustment are not available for this particular group, but a recent five-year outcome study of students who completed the NDS-Boys' Program provides some interesting data. (Little, Note 2) Of the 199 students who completed that program from 1996 through 2000, 94% were rated by parents or agency personnel as having "Inadequate" adjustment in school before coming into the program, and 52% had been in Special Education previously. While the figures for the girls may vary, one can reasonably hypothesize that school adjustment and learning difficulties were important variables in their being referred to NDS-Girl's Program.

It should be noted that the findings of the current study are based on group data, and one should not infer that all students made significant gains. Considerable variability among students is to be expected in a population of special students. Nevertheless, as a group these students appear to have more than made up for being out of the classroom during the two to three months they were getting prepared for formal education and to have benefitted significantly from the individualized instruction they received once they were in classes.

In addition to the assessment of academic progress by pre- and post-testing with the WJ-R ACH, the NDS-Girls' Program monitors other milestones in the girls' learning. For example, the passing percentage of students who took the G.E.D. examination during the period of this study was 79%, as 19 of 24 who attempted the exam received the certificate. In addition, 10 students met the requirements to receive their high school diplomas and went through a graduation ceremony on campus.

References

Woodcock, R. & Johnson, M. B. Woodcock-Johnson Tests of Achievement. 1989. DLM Teaching Resources, Allen, TX.

Notes

1. Little, Verda L. Academic Achievement at New Dominion School-Boys' Program: 1995-2000. Unpublished manuscript, June, 2000. (Available from New Dominion School, P. O. Box 540, Dillwyn, VA. 23936.)
2. Little, Verda L. New Dominion School for Boys Fifth 5-Year Study of Treatment Effectiveness: 1996-2000. Unpublished manuscript, April, 2002. (Available from New Dominion School, P. O. Box 540, Dillwyn, VA. 23936.)