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EXTRACURRICULAR READING AND READING ACHIEVEMENT: THE RICH STAY RICH AND THE POOR DON'T READ

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Elementary school students' extracurricular reading was measured for one year and related to each child's reading achievement scores to determine if good readers read more and if more frequent reading improved reading proficiency. Subjects were 463 students in grades three through six. Many students reported little or no extracurricular reading during the school year. Girls read more than boys while fifth grade students read more than third grade students. Teachers had a significant influence on the amount of extracurricular reading students reported. There were no significant gender differences in reading achievement. Preexisting reading proficiency and engagement in extracurricular reading both had significant effects on current reading achievement although preexisting reading proficiency had considerably more explanatory power than did extracurricular reading. It was concluded that engagement in extracurricular reading might be practically useful across several years, but that preexisting reading proficiency is more predictive of future reading success.

Recent reports from the National Assessment of Educational Progress and the National Center for Education Statistics indicate that American children spend little time reading (Rothman, 1990; West, Hausken, & Chandler, 1992). Previous studies have supported this dismal conclusion. Walberg and Tsai (1984) discovered that the median American child reported reading only one day out of five. Anderson, Wilson and Fielding (1988) found that fifth-grade students read, on average, only 14.8 minutes per day. Taylor, Frye and Maruyama (1990) found that fifth and sixth grade students averaged 15 minutes of reading per day at home. In stark contrast, children spend approximately 180 minutes per day watching television (Shearer, 1990; West, Hausken, & Chandler, 1992). The reading of American adults is comparable to their children. Robinson (1990) reported that people aged 18 to 64 spent an average of only 2.8 hours per week engaged in primary reading activities. That is, the average adult read approximately 20 minutes per day.

This relatively infrequent use of leisure time for reading among American children would not be of great importance if extracurricular reading was not hypothesized to be strongly related to overall growth in reading proficiency. It has been routinely discovered that the more students read outside of class, the stronger their reading skills tend to be (Rothman, 1990). Anderson, Wilson and Fielding (1988) noted, however, that research on interven-

tions to increase amount of reading is flawed because, "Nobody measures the amount of reading, even at the group level, nor does anyone explicitly relate amount of reading to changes in reading achievement at the individual level." (p. 300). As Rothman (1990) concluded, it is impossible from current survey data to determine if better readers engage in more extracurricular reading or whether more frequent extracurricular reading increases reading achievement levels. The present study was designed to illuminate that question. Elementary school students' extracurricular reading was measured for one year and related to each child's reading achievement scores, both before and after the extracurricular reading, to determine if good readers read more or if more frequent reading improved reading proficiency.

Method

Subjects

The initial population of interest was all 477 students enrolled in grades three through six in a Phoenix, Arizona suburban elementary school. Reading achievement test scores were not available for students in grades kindergarten through two because reading achievement testing was not required for those grades. The final study sample was composed of 463 students (228 male, 235 female) in 17 classrooms who completed reading achievement tests in both 1989 and 1990. Students were randomly assigned to teachers, as demonstrated by a nonsignificant difference in preexisting reading test scores for each teacher's class ($F(15, 449) = .54$, $p > .92$). Ethnic status as reported by parents was 94% White, 4% Hispanic, 1% Black, and 1% Asian. Single family homes comprised 76% of the housing and more than 50% of the parents had some college attendance. Only 4.9% of the students received free or reduced cost lunches.

Reading Time Data

Extracurricular reading was measured through a structured school-based program. Students received a reading calendar from their classroom teachers at the beginning of each month. Parents entered the number of extracurricular minutes read each day onto the appropriate calendar block for that date. Parents signed each monthly calendar to attest to its veracity and returned calendars to classroom teachers at the end of each month.

Total reading tine was calculated for each student from monthly reading calendars. Failure to return a calendar counted as zero minutes for that month. Interviews with 30 randomly selected parents of students who failed to return calendars verified that little extracurricular reading occurred for those students. This validity check as well as informal reviews with teachers supported the validity of these self-reported extracurricular reading rates (Beech, 1990).

Total reading time served as a variable in the present study. As expected from previous research, the minutes read variable was highly skewed (Anderson, Wilson, & Fielding, 1988). A natural logarithm transformation was applied to minutes read which successfully normalized that variable. All subsequent analyses, including correlations, were nonsignificantly affected. The untransformed minutes read variable was consequently retained in the analysis for ease of interpretation (Tabachnick & Fidell, 1983).

Reading Test Data

Reading proficiency for each student was quantified by the Reading test from the appropriate level of the Iowa Tests of Basic Skills. The Reading test has been reported to exhibit adequate reliability and to display moderate correlations with a measure of cognitive ability (Hieronymus & Hoover, 1986). The ITBS was administered to

students in April, 1989 and again in April, 1990 as part of a state mandated assessment program. Reading test scores were reported in normal curve equivalent (NCE) format. NCE scores are normalized standard scores with a mean of 50 and a standard deviation of 21.06. The range of NCE's is from a low

Table 1
Mean, Standard Deviation, and Median Minutes Read for Total Sample During the Year by Grade and Gender

	MALE			FEMALE		
GR	Me	Md	SD	Me	Md	SD
3	1324.7	327.5	2401.2	1696.8	981.0	2069.9
4	1892.9	950.0	2443.8	3416.4	2208.0	4128.4
5	2279.6	770.0	3464.8	3086.8	1862.5	4298.4
6	699.7	206.0	1204.3	2647.6	735.5	5938.4

Table 2
Variations in Amount of Extracurricular Reading

Minutes Per Year	Percentile Rank
0	15
15	20
60	25
180	30
332	35
520	40
728	45
950	50
1192	55
1543	60
1808	65
2265	70
2797	75
3255	80
4049	85
5930	90
8200	95
18011	99

of 1 (corresponding to a percentile rank of 1) to a high of 99 (corresponding to a percentile rank of 99).

Results

Extracurricular Reading

Descriptive statistics for total minutes read for students by grade and gender are presented in Table 1. Table 2 displays minutes read grouped into percentile ranks. It is apparent from scrutiny of these tables that many students reported little or no extracurricular reading during the school year. For example, fifty percent of these students read less than 950 minutes per year or, roughly, four to five minutes per day.

Teachers had a significant influence on the amount of extracurricular reading students reported. The class that read the most logged an average of more than 6,733 minutes per student while the lowest class averaged only 392 minutes per student during the school year.

An analysis of variance was conducted to determine gender and grade level effects on extracurricular reading. There were significant main effects on minutes read by gender (F (1, 455) = 10.99, $p < .001$) and by grade level (F (3, 455) = 3.85, $p < .01$) but there was no significant interaction effect. Girls read more than boys while fifth grade students read more than third grade students.

Reading Achievement

There were no significant gender differences in the 1990 reading scores (t (461) = .95, $p > .30$). Students were divided into three groups based upon preexisting reading proficiency: the bottom 20 percent, middle 20 percent, and top 20 percent of the sample. These groups were labeled below average, average, and above average readers, respectively. Minutes read during the year was also divided into three categories: less than one minute per day, one through nine minutes per day, and ten or more minutes per day. These groups were labeled low, medium, and high reading engagement students, respectively. These categorizations produced nine practical groupings of students, ranging from below average skill with low engagement to above average skill with high engagement. Table 3 displays the mean NCE scores of the 1990 Reading test for students divided into these three reading proficiency levels and three extracurricular reading engagement categories.

A 3 x 3 analysis of variance was conducted to ascertain the influence of reading proficiency and extracurricular reading engagement on current reading achievement. There were significant main effects for preexisting reading levels (F (2, 290) = 153.3, $p < .0001$) and for extracurricular reading (F (2, 290) = 6.9, $p < .001$), but there

Table 3
1990 ITBS Reading NCE Scores Across Preexisting Reading Proficiency Levels and Reading Engagement Levels

Reading Skill	Total Group	Reading Engagement		
		Low	Medium	High
Below Avg.	33.04	29.00	35.98	34.71
Average	52.05	49.12	52.79	54.56
Above Avg.	68.73	61.95	69.20	72.09
Total	50.99	43.24	52.66	57.50

was no significant interaction (F (4, 290) = .40, $p > .81$). Post hoc Tukey HSD means comparisons found all three reading proficiency levels significantly different from each other ($p < .05$). The low engagement extracurricular reading group was significantly different from the other two groups, but the medium and high engagement groups were not significantly different.

Correlation analyses with the total sample of 463 students were conducted to further examine the relationships among preexisting reading proficiency, extracurricular reading engagement, and current reading achievement.

The simple correlations of preexisting reading and extracurricular reading with current reading achievement were .724 and .207, respectively. A multiple regression analysis found that both independent variables were significant predictors of reading achievement, but the multiple correlation of preexisting skill and reading engagement was only .728. A partial correlation, controlling for preexisting reading proficiency, between extracurricular reading and current reading achievement was .11. Controlling for extracurricular reading resulted in a .71 partial correlation between preexisting and current reading achievement. Thus, extracurricular reading accounted for approximately one percent of the variance in current reading achievement independent of preexisting reading proficiency while preexisting reading proficiency accounted for fifty percent of the variance in current reading achievement independent of extracurricular reading.

Discussion

Congruent with Anderson, Wilson, and Fielding (1988), Greaney (1980), and Walberg and Tsai (1984), the 463 students in the present study demonstrated a tremendous variation in extracurricular reading. Most students read little once released from the confines of school. A few students spent an hour a day engaged in extracurricular reading. The median student read four to five minutes per day. Teachers had a significant influence on students' involvement in extracurricular reading, with the most active class averaging 17 times more extracurricular reading than the least active class.

The relationship between time spent reading and reading achievement has been discussed in prior research. Greaney (1980) reported a correlation of .31 between book reading and reading achievement. Walberg and Tsai (1984) found a correlation of .10 between tine spent reading and reading achievement. Anderson, Wilson, and Fielding (1988) calculated a correlation of .39 between time spent reading books and a measure of reading comprehension. Taylor, Frye, and Maruyama (1990) found a correlation of .16 between minutes of reading at home and reading achievement. The present sample produced a correlation of .21 between extracurricular reading and current reading achievement. These five studies utilized different samples of students, surveyed readers across different times and locations, quantified reading time differently, and measured reading skill in different ways. Variation in strength of association across studies was, therefore, not startling. It is not unreasonable to conclude, however, that there is a robust association between out-of-school reading and current reading achievement. These associational data do not, however, permit conclusions regarding the causal relationship of other variables, including preexisting reading skill and intellectual ability, with current reading achievement.

Anderson, Wilson, and Fielding (1988) studied a group of fifth grade students and compared their book reading, second grade reading skill, and current reading achievement. Students who were good readers in

second grade continued to demonstrate high levels of achievement in fifth grade. These students also engaged in more book reading. The authors concluded that "the amount of time a child spends reading books is related to the child's reading level in the fifth grade and growth in reading proficiency from the second to the fifth grade." They questioned the reliability of measures of second grade reading proficiency, rejected the primary importance of preexisting reading skill, and consequently attributed reading growth to a "cascade of intervening events." However, the data reported in their study does not completely support these conclusions. Analysis of their Table 5 indicates that second grade reading accounted for 58.4 percent of the variance in fifth grade reading comprehension while book reading accounted for only 3.4 percent of the variance.

Taylor, Frye, and Maruyama (1990) monitored fifth and sixth grade students' home and school reading for 17 weeks and compared the time spent reading in both locations to a measure of reading achievement. They discovered that prestudy reading achievement accounted for 60 percent of the variance in current reading achievement. Less than 2 percent of the variance was unique to school reading and less that 1 percent was unique to home reading.

The present study found that preexisting reading proficiency accounted for 50 percent of the variance in current reading achievement while extracurricular reading accounted for one percent of the variance. This outcome is remarkably similar to the data of Anderson, Wilson, and Fielding (1988) as well as those of Taylor, Frye, and Maruyama (1990) and suggests that preexisting reading skill cannot be perfunctorily rejected as a primary determinant of reading growth. These results are also congruent with Stanovich's (1986) theory of reading development which posited a cumulative advantage mechanism whereby "early achievement spawns faster rates of subsequent achievement."

Although preexisting reading proficiency was a dominant factor in this study, Table 3 displays reading score improvements of 5-10 NCE points for high engagement readers over low engagement readers across all three preexisting reading proficiency levels. Thus, extracurricular reading of as little as ten minutes per day was associated with a one-quarter standard deviation improvement in reading skill for below average and average readers across one school year. Above average readers gained one-half standard deviation during the year. These figures suggest that practically significant reading gains might be achieved by increasing engagement in extracurricular reading for several years.

Although it appears that preexisting reading skill may be the best predictor of current reading achievement, questions about the relationship between extracurricular reading and reading achievement remain unanswered. The present study was conducted for one year in one school across three grade levels with extracurricular reading engagement rates reported by parents and students. There was no experimental manipulation of students, reading rates, so the present report represents what exists, not what might happen if poor readers were induced to read as much as good readers do naturally. Nor did this study tap the extracurricular reading of beginning readers. Perhaps reading skills and extracurricular reading rates have solidified by the third grade but are still plastic at earlier ages? These data do demonstrate that better intermediate grade level readers tended to engage in extracurricular reading at higher rates and continued to exhibit above average reading achievement while poor readers read less and continued to rank below average in reading skill. That is, the rich stayed rich and the poor didn't read.

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