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ABSTRACT

A longitudinal study of growth in reading ability employed two new indicators of print exposure that use a checklist-with-foils logic and that have very brief administration times. Subjects, 52 boys and 46 girls from 4 different fourth- and fifth-grade classes in a religiously-affiliated private school, completed the Title Recognition Test (TRT) and the Author Recognition Test (ART) (in which they identified titles and authors of actual children's books interspersed with false titles). Subjects' scores on standardized reading tests taken during their third and fifth grades were also analyzed. Results indicated that individual differences in third to fifth grade growth in reading were significantly related to subjects' scores on the TRT and the ART. Findings suggest that the extent to which individuals engage in literacy activities is a significant contributor to developed reading ability. Further studies of the cognitive consequences of literacy could be facilitated by the use of the easily administered indicators of print exposure examined in this study. (Three tables of data are included; two appendixes containing the author and title recognition test items and the percentage recognition for each item, and 39 references are attached.) (RS)

Predicting Growth in Reading Ability from Children's Exposure to Print

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Running head: Children's Exposure to Print

Abstract

Previous research on whether exposure to print could account for individual differences in growth in children's reading comprehension has produced conflicting results (Anderson, Wilson, & Fielding, 1988; Taylor, Frye, & Maruyama, 1990). We conducted a longitudinal study of growth in reading ability employing two new indicators of print exposure that use a checklist-with-foils logic and that have very brief administration times. We found that individual differences in third to fifth-grade growth in reading were significantly related to these indicators of print exposure. It appears that the extent to which individuals engage in literacy activities is a significant contributor to developed reading ability. Further studies of the cognitive consequences of literacy could be facilitated by the use of the easily administered indicators of print exposure that we examined in this study.

Predicting Growth in Reading Ability from Children's Exposure to Print

Researchers and practitioners in the reading education community are nearly unanimous in recommending that children be encouraged to spend more time engaged in literacy activities outside of school (e.g., Adams, 1990; Anderson, Hiebert, Scott, & Wilkinson, 1985; Strickland & Morrow, 1989). From a cultural standpoint, this recommendation is virtually unassailable. What is less clear, however, is the empirical status of the tacit model of skill acquisition that often underlies the recommendation to increase children's free reading. The tacit model is basically one of accelerating skill development via practice. It is thought that more exposure to print via home reading will lead to further growth in reading comprehension and related cognitive skills.

As plausible as the tacit model sounds, there is actually very little evidence supporting it. Most of the available evidence is correlational--for example, research demonstrating that avid readers tend to be good comprehenders (e.g., Greaney, 1980; Guthrie & Greaney, 1991). These zero-order correlations are ambiguous because they are open to the interpretation that better readers simply choose to read more--an interpretation at odds with the tacit model of skill development via practice that underlies efforts to increase children's free reading. Taylor, Frye, and Maruyama (1990) have observed that "The assertion that time engaged in silent reading at school and at home is important for children's reading growth has little empirical support; the literature contains surprisingly few studies that have actually found significant relations between time engaged in silent reading and gains in reading achievement for intermediate grade students. In fact, Wilkinson et al. (1988) and Anderson et al. (1988) have recently bemoaned the paucity of evidence" (p. 353).

One reason to be wary of too readily attributing outcomes to the experiential effects of reading is that there has been a strong tendency to over interpret the causal effects of literacy. For example, historians and cultural anthropologists have recently changed the way they interpret certain correlates of societal literacy levels (see Gee, 1988; Kaestle, 1991). There was, in earlier writings, a tendency to attribute every positive outcome that was historically correlated with the rise of literacy--economic development, for example--to the effects of literacy itself. However, it is now recognized that the potential for spurious correlation in the domain of literacy is quite high. Thus, it is a mistake to automatically attribute everything that is historically correlated with the rise of literacy to the effects of literacy itself. For example, the link between economic development and national levels of literacy has turned out to be much more complex than was originally thought. Literacy levels are as much a consequence of economic development as they are its cause (Kaestle, 1991; Wagner, 1987).

The inferential problems in assessing the consequences of print exposure at the level of the individual reader are analogous to the problem of comparing the effects of different levels of literacy across societies or historical periods. That avid readers tend to be good comprehenders is a necessary but not sufficient condition for reaching the conclusion that reading leads to better comprehension. However, Anderson, Wilson, and Fielding (1988) have demonstrated how to conduct a more stringent test of the effects of print exposure (see also, Cunningham & Stanovich, 1991; Guthrie, Schafer, & Hutchinson, 1991). They examined whether exposure to print could predict growth in reading ability over a period of years. They utilized a regression logic to address this issue, first entering second grade reading ability as a predictor of fifth grade reading ability and then entering an estimate of exposure to print derived from daily activity diaries that the children in their study completed. This analysis specifically examines whether exposure to print can account for variance in the fifth grade reading ability not accounted for by second grade reading ability. That is, it examines whether individual differences in print exposure can explain individual differences in second to fifth-grade growth in reading ability. The tendency for good readers to be avid readers, which is already folded into the zero-order correlation between second-grade reading ability and print exposure, is removed when the partial correlation with fifth grade reading ability is examined.

The logic employed by Anderson et al. is, if anything, overly conservative (i.e., biased against print exposure), particularly when the first reading ability assessment might already have been substantially affected by exposure to print. In allowing second-grade ability to enter the regression equation first, some variance that rightfully should be attributed to print exposure--if a properly specified longitudinal model were assessed from the beginning of the children's reading histories--is instead attributed to the second-grade ability measure and is stolen from the print exposure indicator. Nevertheless, Anderson et al. (1988) did observe that home reading time, as estimated by children's daily activity diaries, did explain significant variance in fifth-grade reading comprehension ability after second grade comprehension ability was partialed out.

Given the conservative nature of the analysis, this finding would have been extremely strong evidence for the influence of print exposure on reading skill acquisition had Taylor et al. (1990) not obtained a null finding in a similar type of study. There were, however, a number of methodological differences between the Anderson et al. (1988) and Taylor et al. (1990) studies. Most importantly, the time period traced by the Anderson et al. study was greater (three years versus one year), thus allowing more time for print exposure differences to lead to variability in post-study reading comprehension. Also, the controls on the method of print exposure estimation in the Taylor et al. study (the children's daily estimate of the time spent reading books for pleasure the night before) might not have been as complete as those in the Anderson et al. study and, unlike Anderson et al., Taylor et al. report no reliability estimate for their measure of print exposure outside of school. Indeed, Taylor et al.

themselves draw attention to the "possible unreliability of the self-report measure, particularly of time spent reading at home" (p. 360).

In the present study we investigated whether a different type of print exposure measure can predict third-grade to fifth-grade growth in reading ability. In order to get their print exposure estimates, Anderson et al. (1988) used a comprehensive activity recording procedure whereby children accounted for all of their out-of-school time over a period of weeks. Taylor et al. (1990) used a less comprehensive system whereby the children estimated daily out-of-school reading time but did not account for other time.

These studies, employing daily activity estimates, attempted to measure not only relative differences in print exposure among children, but also sought to estimate the absolute amount of time (in minutes per day) spent on literacy activities. However, the measurement of absolute amounts of reading activity and the techniques used to achieve such measurement have a number of associated problems. First, the daily activity diary technique requires extensive cooperation from teachers and students--a level of participant involvement that may preclude many investigators from using the technique. Secondly, the retrospective estimation of periods of time is a notoriously difficult cognitive task, even for adults (Burt & Kemp, 1991). This cognitive difficulty places some limits on how reliable such estimates can be, even for a group of conscientious and well-motivated children. Finally, there is the potential problem of social desirability confounds: Responses may be distorted due to tendencies to over report socially desirable behaviors (Paulhus, 1984)--in this case, to report more reading than actually takes place. There is independent evidence indicating that social desirability does distort self-reports of book reading by adults (Ennis, 1965; Sharon, 1973-1974; Zill & Winglee, 1990). The extent to which it is a factor in studies utilizing children's self-reports of reading time is unknown.

However, it is not necessary to measure the absolute amount of time spent reading in order to address the question of whether differences in print exposure predict variation in the development of reading comprehension. Only an index of relative differences in exposure to print is required. Thus, it is possible to use measures of print exposure that do not have some of the drawbacks of the activity diary method. For example, Stanovich and West (1989) developed two measures of individual differences in print exposure in adults that were designed to: 1) Yield estimates of relative differences in print exposure in a single 5-10 minute session, 2) Have very simple cognitive requirements, and 3) Be immune from contamination from the tendency to give socially desirable responses. The Author Recognition Test (ART) and the Magazine Recognition Test (MRT) both exploited a signal detection logic whereby actual target items (real authors and real magazines) were embedded among foils (names that were not authors or magazine titles, respectively). The subject simply scans the list and checks those names known to be authors on the ART and those names known to be magazines on the MRT. The number of correct items checked can be corrected for differential response biases which are revealed by the checking of foils. Although checklist procedures have been used before to assess print exposure (Chomsky, 1972), our procedure is unique in using foils to control for differential response criteria.

The are several advantages to this checklist method. First, it is immune to the social desirability effects that so contaminate responses to subjective self estimates of socially-valued activities such as reading. Guessing is not an advantageous strategy because it is easily detected and corrected for by an examination of the number of foils checked. Further, the cognitive demands of the task are quite low. The task does not necessitate frequency judgments, as do most questionnaire measures of print exposure, nor does it require retrospective time judgments, as does the use of daily activity diaries. Finally, the measures can be administered in a matter of a few minutes. All of these advantages have been empirically demonstrated in several studies in which it has been demonstrated that the recognition checklist estimates of print exposure yield correlations with reading ability that are at least as high as those observed in studies employing traditional questionnaire techniques or daily activity records (Stanovich & Cunningham, 1992; West & Stanovich, 1991).

Cunningham and Stanovich (1991) demonstrated the utility of an analogous measure for children, the Title Recognition Test (TRT). The measure has the same signal detection logic as the adult ART and MRT, but employs children's book titles rather than authors as items. This children's measure shares the same advantages of low cognitive load, lack of necessity for retrospective time judgments, objective assessment of response bias, and immunity from socially desirable responding. Allen, Cipielewski, and Stanovich (1991) have demonstrated that this task (and its twin, a children's version of the ART) seems to be measuring the same construct as the home reading time estimates from children's daily activity records. In the present investigation we investigated whether differences in print exposure, assessed by these recognition checklist measures, could predict individual differences in growth in reading ability over a two-year period.

Method

Subjects

The children were recruited from a religiously affiliated private school. There were ninety-eight children in the sample (52 boys and 46 girls), distributed in four different classrooms across two grades. When the TRT and ART were administered--on different days during February of the school year--fifty-four children (Group A) were fourth graders (26 boys and 28 girls) and forty-four (Group B) children (26 boys and 18 girls) were fifth graders. At this time, the mean age of the children in Group A was 9 years, 6 months (SD = 5.0 months) and the mean age of the children in Group B was 10 years 7 months (SD = 5.5 months).

Standardized Measures of Reading Ability

Scores were available from the school's third-grade administration of the

Reading Comprehension subtest (Form 7, Level 9) of the Iowa Tests of Basic Skills (Hieronymus, Hoover, & Lindquist, 1982) for 51 children in Group A and for 38 children in Group B. The reading comprehension subtest is a 44-item test that the students have 42 minutes to complete. Children must read passages and then answer multiple choice questions about them. The questions cover both literal and inferential comprehension. The internal consistency reliability (KR-20) reported in the test manual is .91. The mean grade-equivalent score for the entire sample was 4.5 (SD = 0.9).

Scores were available from the school's fifth-grade administration of the Reading Comprehension subtest (Form G, Level 11) of the Iowa Tests of Basic Skills (Hieronymus, Hoover, & Lindquist, 1986) for 46 children in Group A and for 44 children in Group B. This level of the reading comprehension subtest is a 54-item test that the students have 42 minutes to complete. Children must read passages and then answer multiple choice questions about them. The internal consistency reliability (KR-20) reported in the test manual is .91. The mean grade-equivalent score for the entire sample was 6.2 (SD = 1.2).

In the fifth-grade year, the school also administered the Stanford Diagnostic Reading Test (Karlsen, Madden, & Gardner, 1984; Form G, Level Brown) and scores on the Reading Comprehension, Reading Rate, and Phonetic Analysis subtests were available from 45 children in Group A and 40 children in Group B (41 in the case of Reading Comprehension). The reading comprehension subtest is a 60-item test that the students have 40 minutes to complete. Children must read passages and then answer multiple choice questions about them. According to the test manual: "Literal and inferential comprehension are assessed by means of textual, functional, and recreational reading passages followed by questions. The passages were written to represent a variety of subject-matter areas" (Karlsen & Gardner, 1986, p. 6). The internal consistency reliability (KR-20) reported in the test manual is .94. The mean grade-equivalent score for the entire sample was 7.2 (SD = 3.2).

In the Reading Rate subtest children are given a passage to read as quickly and accurately as possible. They must try to comprehend the passage because it is interrupted every couple of sentences and the student must choose one of three words that best fits the text. The subtest measures how far the child can read in a three minute period. The alternate form reliability reported in the test manual is .78. The mean grade-equivalent score for the entire sample was 6.3 (SD = 2.1).

In the Phonetic Analysis subtest are presented with a word that has one or more letters underlined. They must choose, from among three alternative words, which contains the same sound as the underlined component. The child must decode both the critical segment and the alternative words because the choice cannot be made on a visual basis. There are 30 items on the subtest. The internal consistency reliability (KR-20) reported in the test manual is .90. The mean grade-equivalent score for the entire sample was 8.3 (SD = 4.3). Grade equivalent scores were used in all of the analyses that follow. Analyses conducted on raw scores and percentiles produced virtually identical results.

Print Exposure Measures

Title Recognition Test. The TRT consisted of a total of 38 items: 25 actual children's book titles and 13 foils. The titles were selected from a sample of book titles generated by groups of children in pilot investigations, by examining various lists of children's titles, and by consulting teachers and reading education professionals knowledgeable about current trends in children's literature. The list of children's titles appearing on the TRT is presented in Appendix A, along with the percentage recognition for each item in the present study. The foil titles are listed at the bottom of Appendix A, but on the actual TRT forms they were interspersed with the real titles. In selecting the 25 items to appear on the TRT, an attempt was made to choose titles that were not prominent parts of the classroom reading activities in the particular school participating in this investigation. Because we wanted the TRT to probe out-of-school rather than school-directed reading, we avoided books that were regularly studied in the school curriculum.

The instructions that were read to the subjects and that were printed on their response sheets were as follows: "Below you will see a list of book titles. Some of the titles are the names of actual books and some are not. You are to read the names and put a check mark next to the names of those that you know are books. Do not guess, but only check those that you know are actual books. Remember, some of the titles are not those of popular books, so guessing can easily be detected." On the response sheet that the subjects completed, this measure was labeled the Title Recognition Questionnaire and was referred to in this manner by the experimenter. The TRT took approximately 5 minutes to administer.

For each subject, the number of correct targets identified was recorded as well as the number of foils checked. The split-half (odd/even) reliability of the number of correct items checked (Spearman-Brown corrected) was .71. Calculating Cronbach's alpha produced a reliability estimate of .70. Scoring on the task was determined by taking the proportion of the correct items that were checked and subtracting the proportion of foils checked. This is the discrimination index from the two-high threshold model of recognition performance (Snodgrass & Corwin, 1988). Other corrections for guessing and differential criterion effects (see Snodgrass & Corwin, 1988) produced virtually identical correlational results. The mean corrected score for the entire sample was .520 (SD = .148) and the split-half reliability (odd/even) of the corrected scores was .61.

The TRT was administered to the Group A children as fourth graders and to the Group B children as fifth graders. TRT scores in each group were converted to z-scores based on the means and standard deviation within that group. These standardized TRT scores were used in the analyses that follow. However, using the raw TRT scores produced virtually identical results.

Author Recognition Test. The Author Recognition Test (ART) was a children's version of a measure used in previous adult studies of print exposure (Stanovich & West, 1989). Although it had originally been felt that the use of authors in a recognition checklist might be too difficult for children (which is why our initial work concentrated on the TRT measure), pilot work in several classrooms indicated that children of this age could successfully respond to an author recognition measure and the task has proven to be diagnostic in one previous study (Allen et al., 1991) even though, as expected, recognition performance on the ART tends to be lower than that on the TRT.

Authors on the measure were chosen using the same procedures employed for the TRT. There were 40 names on the test: 25 actual children's authors and 15 foil names. The list of children's author names appearing on the ART is presented in Appendix B, along with the percentage recognition for each item in the present study. The foils were names drawn from the bibliography of Arthur Heilman's Principles and Practices of Teaching Reading (3rd Ed.). The 40 names were randomly ordered. Directions on the ART were the same as those on the TRT with suitable alterations for content.

The ART was scored just as the TRT, each child's score being determined by taking the proportion of the correct items that were checked and subtracting the proportion of foils checked. The split-half (odd/even) reliability of the number of correct items checked (Spearman-Brown corrected) was .83. Calculating Cronbach's alpha produced a reliability estimate of .77. The mean corrected score for the entire sample was .264 (SD = .146) and the split-half reliability (odd/even) of the corrected scores was .70.

The ART was administered to 46 Group A children as fourth graders and to 39 Group B children as fifth graders. ART scores in each group were converted to z-scores based on the means and standard deviation within that group. These standardized ART scores were used in the analyses that follow. Using the raw ART scores produced virtually identical results.

Results

Table 1 presents the correlations between the two measures of print exposure (TRT and ART), measures of fifth grade reading ability (Stanford and Iowa tests), and third grade Iowa reading comprehension. Correlations in the Table are based on the maximum number of subjects for each pair of variables. Both print exposure measures displayed significant correlations with every measure of reading ability, although the correlations of the ART with measures of reading comprehension tended to be lower than those involving the TRT.

Insert Table 1 about here

The zero-order correlations do not, however, address the issue of whether print exposure measures can predict growth in reading skill over the third to fifth-grade period. This question is addressed in the regressions reported in Table 2, where third-grade reading comprehension scores on the Iowa test are entered first, followed by the print exposure measures, as predictors of the fifth-grade comprehension and reading rate tests. These analyses thus determine whether the measures of print exposure can predict individual differences in growth in reading ability between third and fifth-grade.

The results of the analyses indicate that in the case of the fifth-grade Stanford reading comprehension scores, both measures of print exposure accounted for significant variance after third-grade reading comprehension is partialed (11.0% and 8.1% unique variance for the TRT and ART, respectively). The same was true for the Stanford reading rate subtest. Both measures of print exposure explained significant additional variance after third-grade reading comprehension was partialed (10.7% and 18.5% unique variance for the TRT and ART, respectively). The TRT was also a significant unique predictor of fifth-grade Iowa reading comprehension scores (7.4% unique variance), but the ART was not.

Insert Table 2 about here

With one exception (ART as a predictor of Iowa comprehension) the print exposure measures predicted individual differences in third- to fifth-grade growth in reading ability. The single exception occurs in the most conservative analysis--one where the Iowa comprehension test was both the criterion and the first predictor. Because these two tests share method variance, it is possible that the third-grade Iowa comprehension test partials too much variance from the fifth-grade criterion. For example, Taylor et al. (1990) defend their use of two different comprehension tests by arguing that "Two different comprehension tests being administered actually may be advantageous to the question being addressed. They are both widely used, well-standardized instruments that measure the same skill domain. Thus, their relationship should capture the stability over time of students reading comprehension while not including measure-specific variance that would typically inflate stability estimates of a single instrument administered at two points in time" (pp. 356-357).

A second set of hierarchical regression analyses were run in order to include an additional control for spurious correlations between print exposure and comprehension growth. Decoding skill, as measured by the Phonetic Analysis subtest of the Stanford, was examined as a possible third variable mediating the linkage between reading experience and comprehension growth. This linkage might come about if, for example, good decoding skills support growth in reading comprehension and, at the same time, make reading more enjoyable thus leading to greater print exposure. The analyses displayed in Table 3 controlled for decoding skill by entering performance on the Phonetic Analysis subtest into the regression equation prior to third-grade reading comprehension scores. The print exposure measures were entered last as predictors of the fifth-grade measures of reading ability.

Insert Table 3 about here

The results of the hierarchical regression analyses displayed in Table 3 were analogous to the results displayed in Table 2. Both the TRT and ART were significant unique predictors of Stanford Comprehension and Reading Rate scores, but only the TRT was a significant predictor of fifth-grade Iowa comprehension scores after third-grade comprehension skill and decoding ability were partialed.

Discussion

Our results are largely convergent with the findings of Anderson et al. (1988). In five out of six analyses, the print exposure measure was able to account for variance in fifth-grade reading ability after third-grade reading ability had been partialed out. In three of four analyses, individual differences in reading comprehension growth were reliably linked to differences in print exposure. These results obtained even when decoding skill was partialed from the analyses.

We must again stress the conservative nature of the analyses employed by Anderson et al. (1988) and in the present study. It could be said that in order to bias things against the variable of interest (print exposure), we and Anderson et al. deliberately employed a causally misspecified analysis. A particular score on the TRT reflects not just free reading in the year the task was administered, but is instead a proxy for literacy activities that have been ongoing since the child's first reading experiences. In fact, the link between measures of print environments and reading ability is present before third grade (Juel, 1988; Wells, 1985). By entering third-grade reading comprehension ability into the regression equation prior to the TRT and ART we do not mean to imply that we believe that print exposure has no influence on comprehension (or on decoding) prior to the third grade (see, for example, Stanovich, 1986). We nevertheless allowed third-grade comprehension to appropriate variance that rightly belongs to print exposure, in order to deliberately bias the analyses against the latter variable. That the TRT and ART survive as predictors of fifth-grade comprehension in most such analyses in our study (as well as in Anderson et al., 1988) is certainly suggestive of a causal role for print exposure in developing comprehension ability. Print exposure appears to be both a consequence of developed reading ability and a contributor to further growth in that ability.

These results strengthen the case for advocating a more prominent role for reading activity in models of reading development and in general theories of cognitive development (Anderson et al., 1988; Cunningham & Stanovich, 1991; Guthrie et al., 1991; Hayes, 1988; Stanovich, 1986, in press; Stanovich & Cunningham, 1992; West & Stanovich, 1991). For example, in cognitive developmental psychology, a popular research strategy has been the the cognitive correlates approach (Sternberg, 1990) in which investigators attempt to determine whether individual differences in particular cognitive processes or knowledge bases can serve as predictors of reading ability (e.g., Carr & Levy, 1990). The causal model that is implicit in such analyses locates the primary individual differences in the cognitive subprocesses assumed to subserve the reading act. However, a more complex causal model views individual differences in basic cognitive processes and knowledge bases as at least in part resulting from the experience of reading itself (Stanovich, 1986, in press). Given that cognitive and developmental psychologists continue to emphasize the importance of domain knowledge in determining processing efficiency (Ceci, 1990; Chi, Hutchinson, & Robin, 1989; Keil, 1984), it may pay to focus further research attention on reading as a mechanism that builds knowledge bases and that exercises verbal talents.

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Author Note

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Table 1

Correlations Between the TRT and ART and Measures of Reading Ability

Variable	1.	2.	3.	4.	5.	6.
1. Title Recognition Test						
2. Author Recognition Test	.54					
3. Stanford Reading Comprehension (Fifth)	.58	.43				
4. Stanford Reading Rate (Fifth)	.46	.48	.54			
5. Stanford Phonetic Analysis (Fifth)	.31	.17	.31	.34		
6. Iowa Reading Comprehension (Fifth)	.49	.31	.75	.54	.29	
7. Iowa Reading Comprehension (Third)	.44	.31	.65	.39	.17	.55

Correlations are based on sample sizes that vary from 74 to 90. All of the correlations in the Table are significant at the .05 level (two-tailed) except the two correlations of .17.

Table 2

Hierarchical Regressions Predicting Fifth-Grade Reading Ability

Dependent Variable:
Fifth Grade Stanford Reading Comprehension

Step Variable	R^2	R^2 Change	F to Enter
1. Iowa Comprehension (Third)	.416	.416	54.06*
2. Title Recognition Test	.526	.110	17.38*

Dependent Variable:
Fifth Grade Stanford Reading Comprehension

Step Variable	R^2	R^2 Change	F to Enter
1. Iowa Comprehension (Third)	.349	.349	34.89*
2. Author Recognition Test	.430	.081	9.02*

Dependent Variable:
Fifth Grade Stanford Reading Rate

Step Variable	R^2	R^2 Change	F to Enter
1. Iowa Comprehension (Third)	.150	.150	13.28*
2. Title Recognition Test	.257	.107	10.59*

Dependent Variable:
Fifth Grade Stanford Reading Rate

Step Variable	R^2	R^2 Change	F to Enter
1. Iowa Comprehension (Third)	.116	.116	8.38*
2. Author Recognition Test	.301	.185	16.75*

Dependent Variable:
Fifth Grade Iowa Reading Comprehension

Step Variable	R^2	R^2 Change	F to Enter
1. Iowa Comprehension (Third)	.297	.297	33.78*
2. Title Recognition Test	.371	.074	9.25*

Dependent Variable:
Fifth Grade Iowa Reading Comprehension

Step Variable	R^2	R^2 Change	F to Enter
1. Iowa Comprehension (Third)	.236	.236	20.95*
2. Author Recognition Test	.253	.017	1.56

* $p < .01$

Note: The six regressions are based on Ns of 78, 67, 77, 66, 82, and 70, respectively.

Table 3

Hierarchical Regressions Predicting Fifth-Grade Reading Ability

Dependent Variable:
Fifth Grade Stanford Reading Comprehension

Step Variable	R^2	R^2 Change	F to Enter
1. Stanford Phonetic Analysis	.101	.101	8.47**
2. Iowa Comprehension (Third)	.454	.353	47.81**
3. Title Recognition Test	.543	.089	14.11**

Dependent Variable:
Fifth Grade Stanford Reading Comprehension

Step Variable	R^2	R^2 Change	F to Enter
1. Stanford Phonetic Analysis	.072	.072	4.98*
2. Iowa Comprehension (Third)	.393	.321	33.27**
3. Author Recognition Test	.459	.066	7.55**

Dependent Variable:
Fifth Grade Stanford Reading Rate

Step Variable	R^2	R^2 Change	F to Enter
1. Stanford Phonetic Analysis	.117	.117	9.98**
2. Iowa Comprehension (Third)	.229	.112	10.70**
3. Title Recognition Test	.300	.071	7.42**

Dependent Variable:
Fifth Grade Stanford Reading Rate

Step Variable	R^2	R^2 Change	F to Enter
1. Stanford Phonetic Analysis	.090	.090	6.33*
2. Iowa Comprehension (Third)	.192	.102	7.98**
3. Author Recognition Test	.346	.154	14.51**

Dependent Variable:
Fifth Grade Iowa Reading Comprehension

Step Variable	R^2	R^2 Change	F to Enter
1. Stanford Phonetic Analysis	.093	.093	7.70**
2. Iowa Comprehension (Third)	.339	.246	27.57**
3. Title Recognition Test	.387	.048	5.72*

Dependent Variable:
Fifth Grade Iowa Reading Comprehension

Step Variable	R^2	R^2 Change	F to Enter
1. Stanford Phonetic Analysis	.041	.041	2.77
2. Iowa Comprehension (Third)	.260	.219	18.56**
3. Author Recognition Test	.269	.009	0.77

* $p < .05$ ** $p < .01$

Note: The six regressions are based on Ns of 77, 66, 77, 66, 77, and 66, respectively.

Appendix A
Title Recognition Test Items

Percentage Recognition

Title	%	Title	%
A Light in the Attic	99.0%	Superfudge	88.8%
How to Eat Fried Worms	98.0%	Dr. Dolittle	25.5%
Call of the Wild	40.8%	From the Mixed-Up Files of Mrs. Basil E. Frankweiler	70.4%
The Chosen	7.1%	Island of the Blue Dolphins	40.8%
Tales of a Fourth Grade Nothing	99.0%	Ramona the Pest	90.8%
The Polar Express	57.1%	Iggie's House	14.3%
The Indian in the Cupboard	59.2%	The Great Brain	36.7%
The Cybil War	54.1%	Misty of Chincoteague	3.1%
Homer Price	35.7%	Henry and the Clubhouse	49.0%
Heidi	53.1%	Dear Mr. Henshaw	84.7%
Freedom Train	12.2%	Harriet the Spy	79.6%
James & the Giant Peach	92.9%	The Lion, the Witch and the Wardrobe	83.7%
By the Shores of Silver Lake	18.4%		

Foils:

Joanne	2.0%
It's My Room	1.0%
Hot Top	0.0%
Don't Go Away	3.1%
The Missing Letter	9.2%
The Rollaway	2.0%
Sadie Goes to Hollywood	0.0%
The Schoolhouse	2.0%
He's Your Little Brother!	3.1%
Ethan Allen	4.1%
The Lost Shoe	4.1%
Skateboard	16.3%
Searching the Wilds	2.0%

Appendix B
Author Recognition Test Items

Percentage Recognition			
Virginia Hamilton	8.2%	Roald Dahl	63.5%
Peggy Parish	29.4%	Elizabeth George Speare	8.2%
Jean Fritz	52.9%	Robert Lawson	0.0%
Sid Fleischman	25.9%	Judy Blume	96.5%
John D. Fitzgerald	14.1%	Keith Robertson	1.2%
Louise Fitzhugh	5.9%	Clyde Bulla	3.5%
Jean Craighead George	0.0%	Scott O'Dell	10.6%
Katherine Paterson	48.2%	Betsy Byars	37.6%
Mary Stolz	8.2%	Natalie Babbitt	25.9%
Lloyd Alexander	35.3%	E.B. White	67.1%
Jim Kjelgaard	2.4%	E.L. Konigsburg	41.2%
Robert Newton Peck	16.5%	Patricia Reilly Giff	7.1%
Beverly Cleary	96.5%		
Foils:			
J. Harlan Shores	1.2%		
Rita Klosterman	0.0%		
Thomas Turner	7.1%		
Lois Sauer	2.4%		
H.T. Fillmore	4.7%		
Kenneth Dulin	1.2%		
Donald Lashinger	1.2%		
Lewis Smith	5.9%		
Sidney Rauch	0.0%		
H. P. Daniels	2.4%		
Hilda Taba	0.0%		
Arnold Burron	0.0%		
Frank Guszak	0.0%		
Joanne Vacca	0.0%		
Sara Lundsteen	2.4%		