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Introduction

This is the final article in the series devoted to parents and reading. The first article described typical school reading programs. The second article described different types, purposes and scores of reading tests. The third article focused upon parental involvement in reading and presented activities that could be used at home and school. This article will focus upon recent technological advances, such as television, VCRs and computers, and how parents can use these tools to help their children.

Technology and Your Child

Two of the most recent innovative trends in schooling have to do with technology. The introduction and use of television and computers have had a profound impact upon the development of children. Let's examine television first. Nationally, television sets are turned on in the homes of preschoolers approximately forty-four hours a week. The national average of television viewing for all children is twenty-five hours a week. When one considers that chil-
dren spend as much time watching television as attending school, we need to examine the effects of this practice and utilize this resource wisely. Research shows that television has a profound effect on children's social learning and behavioral modeling. If television is not used as a baby sitter, but as a tool for discussion, inquiry and interaction, we can greatly enhance our children's learning. Psychologists talk about incidental learning, meaning simply what children learn by chance. Much of what children learn from television is of this nature.

Studies have been done that indicate when parents watch television with their children, they tend to perform better on tests of comprehension. This is most likely due to the discussion and expansion of ideas and concepts that are presented in the program.

Let's examine some suggestions for using television to improve your child's listening, speaking, reading and writing skills. First, encourage your child to listen carefully to the spoken word. Second, reinforce their listening by speaking some of the words or phrases they are likely to have heard.

Third, give the child practice in repeating and speaking those words and phrases. You can do this by making a game out of this activity. Fourth, try to incorporate some of these words into their regular vocabulary, whether spoken or written. Fifth, have a sharing period devoted to television so your child can describe any interesting programs they have seen. Not only will you enhance your child's verbalization skills, but you can assist them with any misconceptions, fears or fantasies they have acquired as a result of viewing the program.

Sixth, collect books, magazines, articles, posters and newspaper accounts of favorite television stars and programs. Seventh, for younger children, look for coloring books dealing with current television favorites, which usually provide large pictures and brief captions consisting of very simple words beneath the illustrations. Kindergarten and primary children can color the picture, tell about it and read all or part of the caption.

Eighth, obtain the lyrics of popular songs and give each child a copy. What a great way to help children
learn basic sight words. Basic sight words are those words a child should know instantly (the, a, boy, all, when, where, etc.). Learning unusual and difficult words in an interesting, meaningful context will help children learn more quickly and efficiently and will transfer to new situations. This activity can also help show children that reading can be fun.

Ninth, to help children develop their comprehension skills, assign them different purposes when watching their favorite television show. For example, you might ask them to summarize the plot, describe the characters, evaluate the likelihood of the episode, suggest an alternate ending to the program, note how the characters dress and talk and discuss which segments are the funniest and most exciting.

Tenth, look for technical terms or scientific terms used in their favorite shows. Mention these terms and have your child make educated guesses as to what the terms mean. Then have them evaluate their guesses by checking the dictionary. Frequently these words are not understood by children and you can greatly enhance their vocabulary and concept development by talking about these terms.

For writing, you can have your child find out as much information as possible about a television star and write their biography. Many educationally oriented programs are also available through noncommercial educational television (ETV) station in many areas. ETV stations are generally licensed to nonprofit educational organizations and primarily serve the educational needs of the community and the advancement of educational programs. Funds for ETV come from public contributions, foundation grants, educational institutions and other revenue sources and children's programming on ETV are generally teaching, learning oriented and of interest to most children.

Finally, the introduction of the video cassette recorder has given another powerful resource for developing the cognitive level of children. Resources such as Video Rainbow Limited of Hartsdale, New York, are available to help you locate tapes for children and young people, develop youngsters' critical viewing skills and teach adults
how young people respond to television. This organization is a national clearinghouse and information for young people's video. It is produced by independent artist-producers and lists all genres of video such as documentary, fantasy, art, dance, and comedy. Many public libraries now have video tape rentals, and film librarians can assist with programming and special videos also.

Television is frequently accused of being the maker of illiterate America, contributing to juvenile delinquency, crime, and poverty. Television can transmit the bad as well as the good, the mediocre as well as the superior. Television is not the bane that has created the ills of America nor is it a panacea that will solve its problems. It has been described as an important educational tool, and as such it can be misused. But if it is wisely and imaginatively used, can play a major role in broadening and enriching the education of our children.

COMPUTERS

The second technological invention to impact upon children and education is the computer. Public schools have become increasingly involved with computer applications. Computer assisted instruction (CAI) had become a fact of life during the decade of the sixties. With the decade of the seventies and the eighties and the technology of the microcomputer, even more schools, classrooms, teachers and students are using computers. Names such as Apple, Commodore, Tandy, IBM, Radio Shack are familiar to both schools and parents.

At first few people knew what to do with the machines --it was simply fashionable to have them. But it wasn't long before educators began experimenting with them and learning about them. States and schools began talking about "computer literacy" and training programs were developed to help teachers learn about computers and how to integrate them into classrooms and the school curriculum. Many parents are now as familiar with computers as their children and have watched their children learn to read, write, and compute on the machines.

Microcomputers are increasingly popular in private homes also. Home computers are located in about ten
percent of the private homes in the United States. That amounts to eight or nine million homes and if the trend continues up to twenty-five million machines could be in homes by 1990.

There are many different types of software programs available for children. Games, tutoring, drill and practice, simulations and problem solving are the most frequently used programs. Let's examine each of these programs, for they are designed for different purposes.

The most common type of software package for children, in the home, is the microcomputer game. Microcomputer games may be designed to teach an instructional objective, review material or provide drill and practice activities. Some games are not designed to teach anything -- such games as one finds in the video-arcade are some examples of non-teaching games. Recent research on the use of games has shown that games can teach content effectively.

Tutoring programs are any programs that teach new information to students. They may also provide some drill and practice, but the key ingredient is teaching new material. There are basically three steps to a tutorial. First, the information is presented, then an assessment is made of the information and finally corrective measures are provided if the child does not understand the information.

Drill and practice refers to programs in which the same kind of exercise or problem is presented repeatedly. For example, students may be asked to add two digit numbers with no carrying or to write the contraction for two words. One way this is done in classrooms is through students completing worksheets. Another way is through using the computer. One advantage to using the computer is that the machine can be programmed to provide immediate feedback and reinforcement for each exercise.

Simulation programs are intended to help children understand relationships between variables. They typically include a few features of a real-world situation and present a model of the situation. Then children are asked to manipulate, then watch the results of interactions. Simulations frequently require fairly good reading skills
as a part of the interaction, and young people may not have sufficient skills to read or interpret the relationships being presented in the simulation. In the intermediate grades, students are more likely to profit from instruction and be able to operate programs that involve two to three variables.

Problem solving involves a variety of processes that includes gathering and synthesizing information or data to explain something or develop something new. Problem solving is very different from solving problems. When students are asked to complete a set of exercises in mathematics, they are engaged in solving problems, but when students are presented with unusual tasks and asked to figure out ways to complete them they are engaged in problem solving. The microcomputer is one tool that can be used to help develop children's problem solving abilities. When students are asked to write a working program that will accomplish a goal they are involved in problem solving. They must design, write, debug and test the program to produce the end result. Many young children are introduced to Logo and Basic, computer languages and asked to develop and produce their own programs.

Another common use of the computer for young children is word processing. Word processing programs allow children to write stories and edit materials they have created. Children will draft a story, examine the story on the screen, make corrections and then print out a final copy. Today's programs frequently have spelling and grammar checkers that can allow students to correct their material and present near perfect copies for book reports and other school related projects.

There are a number of resources available for parents to help them select the computer and software packages that would best meet their child's needs. Many parents have found Choosing Educational Software: A Buyer's Guide to be most helpful. The unique problems involved in selecting microcomputers software are discussed in detail and sample evaluation forms and lists of criteria developed by researchers and educational groups are provided. An index of hardware, software, organizations, publications and forms are provided.
The Index to Computer Assisted Instruction is another excellent source that identifies programs and projects related to the computer. The public library also has resources and some have developed a collection of literature from the leading distributors of microcomputer hardware and software. Sources such as those listed above can be most helpful for understanding and using this new technology.

Unfortunately, the use of many home computers for young children is limited to playing video games and not the educative function that computers can provide. The research indicates that children not only enjoy using computers; they learn from them as well. Children and adults get caught up in the fascination of running the computer. We don't know enough yet about the effectiveness of the computer as the major or sole means of instruction, but we are aware of the support and reinforcement they can provide children and the positive affective results.
WHAT'S THE VALUE OF AN IRI?
IS IT BEING USED?

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Tampa, Florida

While the Informal Reading Inventory (IRI) has long been recommended as a valuable instrument for initial placement of students in reading materials and for diagnosis of students' strengths and weaknesses in comprehension and word recognition skills (Beldin, 1970), the feasibility of its use by classroom teachers has been questioned because of the time involved. Della-Piana, Jensen, and Murdock (1970) stated that the time factor in the construction, administration, and interpretation of IRIs precluded their frequent use by classroom teachers. However, no data were provided to substantiate their opinion. From a survey among 24 professionals (reading specialists, classroom teachers, media specialists, and one administrator), Johns (1976) reported that the group was evenly split on the usability of the IRI by classroom teachers. "A number of respondents indicated that the use of IRIs by elementary teachers was a problem because of the time involved" (Johns, 1976, p. 12). In contrast, the respondents perceived no problems in the use of the IRI by reading and learning disability specialists in a clinical situation.

Recently, Masztal and Smith (1984) provided some empirical data on the use of IRIs by classroom teachers. While 78% of their 125 respondents indicated that they knew how to administer an IRI, only 54% reported that they actually administered IRIs in their classrooms. Masztal and Smith concluded that, because the IRI was used by over half the teachers in their sample, teacher educators were justified in spending large amounts of time necessary to instruct preservice teachers in the administration and interpretation of an IRI. However, their questionnaire did not address the frequency of IRI use.
As teacher educators, we have for some time had a nagging concern that were were spending an inordinate proportion of time in our undergraduate corrective reading course teaching a procedure (i.e. the IRI) that classroom teachers would seldom use once they were in the classroom. This concern, which grow out of informal contects with teachers and observations in "real" classrooms, led us to the current study.

This study sought to answer the following questions:

1. To what extent is the IRI used for the purpose of initial placement of students in reading materials?

2. To what extent do classroom teachers and support specialists value the IRI as a means of providing diagnostic information about students' reading levels (subsequent to initial placement), oral reading ability, comprehension ability, and word recognition skills?

3. How frequently do classroom teachers and support specialists administer an IRI to obtain diagnostic information?

4. What is the relationship between classroom teachers' and support specialist's frequency use of the IRI for diagnostic purposes and their value ratings of the IRI as a diagnostic instrument?

Method

Subjects

The sample (N = 343) consisted of 280 (82%) classroom teachers and 63 (18%) support specialists in grades K-6. The category of support specialists included personnel who worked with students outside the classroom (reading and learning disability specialists, guidance counselors, etc.) and curriculum specialists who worked primarily with teachers. The respondents were in 11 Florida counties of varying population size and characteristics. Two counties (n = 174) were large urban centers with a population range of 650,000 to 750,000. Five counties (n = 93) ranged from 150,000 to 300,000 in population and were a mixture of small cities and rural areas. The remaining 4 counties (n = 76) had under 50,000 population and were primarily rural in nature.

The subjects' years of educational experience were as
follows: 1-4 years (14%), 5-9 years (22%), 10-14 years (25%), and 15+ years (39%). Ages were 21-30 (19%), 31-40 (40%), and 41+ (41%). Ninety-four percent were female and 6% were male.

The breakdown of the 280 classroom teachers according to grade level was: K, 27 (10%); Grade 1, 65 (23%); Grade 2, 40 (14%); Grade 3, 47 (17%); Grade 4, 46 (16%); Grade 5, 34 (12%); and Grade 6, 21 (8%).

Materials

The questionnaire was designed to determine the value and frequency of use of a number of diagnostic procedures, among which were five items specifically related to the IRI. The use of a number of diagnostic procedures masked our primary interest (for this study) in the IRI; that is, we hoped to alleviate the problem of participants' responding favorably to the researchers' obvious topic of interest.

The questionnaire was comprised of three major parts: (a) the use of information from four different data sources (one of which was the IRI) for placing students in reading materials when they entered a new grade level or when they transferred into a school; (b) 10 statements related to the value of the use of diagnostic procedures, rated on a 7-point scale; and (c) 7 statements related to the frequency of use of the same diagnostic procedures, rated on a 7-point scale. As can be seen in the questionnaire (see Appendix), value statements 2, 6, 7, and 10, and frequency statement 2 were concerned with the IRI.

Procedure

We identified Florida counties of varying population size and characteristics (as previously described) in order to have a sample somewhat representative of the state's population of teachers. The counties were geographically distributed over the state.

In order to maximize the percentage of questionnaires returned, we sent packets of questionnaires to key persons known to the researchers in the identified counties. A cover letter requested that they distribute the questionnaires to selected school faculties in their counties and return the questionnaires when they were completed. A large stamped, self-addressed return envelope was included for
their convenience. This procedure resulted in a return of 343 questionnaires (85%).

Results

Use of Four Data Sources for Placement

Table 1 presents the number and percent of respondents who reported using each of four data sources (IRI, basal placement tests, former basal book placements, and achievement tests) to place students in reading materials when they entered a new grade level or when they transferred into the school. According to these results, the IRI was used slightly more often than the other three data sources to obtain information for initial pupil placement in reading materials. However, the percentages of use of the first three sources were very similar.

Table 1

<table>
<thead>
<tr>
<th>Data sources</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRI</td>
<td>214</td>
<td>62</td>
</tr>
<tr>
<td>Basal placement tests</td>
<td>204</td>
<td>59</td>
</tr>
<tr>
<td>Former basal book placements</td>
<td>198</td>
<td>58</td>
</tr>
<tr>
<td>Achievement tests</td>
<td>121</td>
<td>35</td>
</tr>
</tbody>
</table>

Note—Totals add to more than 100% because many respondents checked more than one data source.

Value and Frequency of Use of the IRI for Diagnostic Purposes

As can be seen in Table 2, classroom teachers' mean ratings of the four IRI value statements clustered around the rating of 5, "Often Valuable." Support specialists' mean value ratings were slightly higher than those of the classroom teachers, but they could still be characterized by the "Often Valuable" descriptor.

Frequency of IRI use for diagnostic purposes is presented in Table 3. For purposes of comparison respondents were classified into one of three categories based on their
Table 2
Means and Standard Deviations of Respondents' Value Ratings of the IRI for Diagnostic Purposes

<table>
<thead>
<tr>
<th>Value statements*</th>
<th>Classroom teachers</th>
<th>Support specialists</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>(2) Reading levels</td>
<td>5.16</td>
<td>1.25</td>
</tr>
<tr>
<td>(6) Oral reading</td>
<td>5.12</td>
<td>1.32</td>
</tr>
<tr>
<td>(7) Comprehension</td>
<td>4.93</td>
<td>1.38</td>
</tr>
<tr>
<td>(10) Word recognition</td>
<td>5.39</td>
<td>1.21</td>
</tr>
</tbody>
</table>

Note—Means and standard deviations are based on a 7-point rating scale.
* Numbers in parentheses refer to item number on the questionnaire (see Appendix).

Table 3
Number and Percent of Respondents' Frequency of Use of the IRI for Diagnostic Purposes

<table>
<thead>
<tr>
<th>Frequency of use*</th>
<th>Classroom teachers</th>
<th>Support specialists</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (275)</td>
<td>%</td>
</tr>
<tr>
<td>Low</td>
<td>168</td>
<td>61</td>
</tr>
<tr>
<td>Moderate</td>
<td>84</td>
<td>31</td>
</tr>
<tr>
<td>High</td>
<td>23</td>
<td>8</td>
</tr>
</tbody>
</table>

* Low use = "Never happens" or "Happens less than once per semester." Moderate use = "Happens less than once or month" or "Happens less than once per week." High use = "Happens once per week," "Happens two-four..." ". . . five or more times per week."

reported frequency of use of the IRI, as explained above.

Almost two-thirds of the classroom teachers indicated low use while slightly less than half of the support specialists fell in this category. Percentages of moderate use were similar for both groups, approximately 30%. While one
fourth of the support specialists indicated high use, only one-twelfth of the classroom teachers did so.

To determine whether respondents in different frequency of use categories valued the IRI differently, data were subjected to separate one-way analysis of variance procedures for classroom teachers and support specialists, respectively. For each of the two respondent groups four different analyses were performed, using as dependent measures

Table 4
Frequency of Use Group Means and F Tests on Respondents' Value Ratings of the IRI for Diagnostic Purposes

<table>
<thead>
<tr>
<th>Value statements</th>
<th>Frequency of use groups</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>Moderate</td>
<td>High</td>
<td>F</td>
</tr>
<tr>
<td>(2) Reading levels</td>
<td>5.04</td>
<td>5.25</td>
<td>5.52</td>
<td>1.88</td>
</tr>
<tr>
<td>(6) Oral reading</td>
<td>4.93</td>
<td>5.26</td>
<td>5.74</td>
<td>4.66&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>(7) Comprehension</td>
<td>4.83</td>
<td>4.96</td>
<td>5.35</td>
<td>1.45</td>
</tr>
<tr>
<td>(10) Word recognition</td>
<td>5.21</td>
<td>5.56</td>
<td>5.74</td>
<td>3.45&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Classroom teachers*

(2) Reading levels 5.14 5.50 5.40 0.55
(6) Oral reading 5.48 5.56 5.27 0.26
(7) Comprehension 4.93 5.39 5.40 0.89
(10) Word recognition 5.55 5.17 5.33 0.54

Support specialists**

(2) Reading levels 5.14 5.50 5.40 0.55
(6) Oral reading 5.48 5.56 5.27 0.26
(7) Comprehension 4.93 5.39 5.40 0.89
(10) Word recognition 5.55 5.17 5.33 0.54

*<sup>n</sup> = 168 (Low), 84 (Moderate), 23 (High). **<sup>n</sup> = 29 (Low), 18 (Moderate), 15 (High)

<sup>b</sup>p < .05.  <sup>a</sup>p < .02.

value ratings of the IRI for providing information on students' (a) reading levels, (b) oral reading ability, (c) comprehension ability, and (d) word recognition skills.

Table 4 reports the means and overall F values for each analysis by respondent group. The results of these analyses show significant omnibus F tests (p < .05) in two
instances (oral reading and word recognition) for the classroom teacher data only. Scheffe's post hoc test was utilized to make pairwise comparisons between the means of usage groups (low, moderate, high) to determine which groups differed significantly in their value ratings of the IRI. In only one instance was a significant difference observed between pairs of individual group means. Classroom teachers in the high frequency of use category perceived the IRI as significantly more valuable as a tool for providing information on students' oral reading ability than teachers in the low frequency of use category, $F(2,272) = 4.66, p < .02$.

Discussion

For this sample of 280 classroom teachers and 63 support specialists, the IRI was a major data source for initially placing students in reading materials; however, it was used only slightly more than basal placement tests and former basal book placements. Our questionnaire did not ask who administered the placement instruments, but many classroom teachers wrote in the margin that support specialists were responsible for placement decisions. Though both groups of respondents appeared to recognize equally the value of the IRI as a diagnostic instrument, classroom teachers indicated a much lower level of actual use.

When the relationship between frequency of IRI use for diagnostic purposes and value ratings of the IRI as a diagnostic instrument was examined, we found that classroom teachers who used the IRI frequently valued it significantly higher than those teachers who used it infrequently or not at all, but only for diagnosing oral reading ability. There were no significant differences between use categories in the value ratings of the IRI as an instrument for determining students' reading levels (subsequent to initial placement), comprehension ability, and word recognition skills. It seems that, if teacher educators are going to spend instructional time on the IRI, and if they want to encourage its use, they must place the emphasis on the different kinds of diagnostic information that it can provide.

This survey indicated that, for one reason or another, the IRI was not frequently used by classroom teachers. While our questionnaire was not designed to determine classroom teachers' reasons for not using and IRI, it is logical to assume, as suggested by the literature, that
lack of time was a major factor. If the IRI is seldom going to be used by classroom teachers, we question the practice of teaching its administration and interpretation in a one semester corrective reading course for preservice teachers. The inordinate amount of time required for students to achieve proficiency in the use of an IRI might better be spent in showing students how to obtain diagnostic information at the same time as they are instructing groups of children in the regular reading program. Klesius and Searls (1986) have suggested a number of ways that this might be accomplished and have provided tabulation forms to facilitate the process of recording individual student responses in a group situation. While group assessment cannot provide as much information as individual testing with an IRI, the probability that teachers would actually carry out such assessment appears to be greater. However, the acceptance of this hypothesis will depend on further empirical verification.

REFERENCES


APPENDIX

Questionnaire: Value and Frequency of Use of Diagnostic Procedures

We are in the process of revising the content of our undergraduate and graduate courses that include the diagnosis of reading problems. We need your input as to which diagnostic procedures are most valuable and how frequently you use them.

Regular classroom teacher, 1985-86:

Other than regular classroom teacher, 1985-86:

Please circle:

- Title
- Years of experience: 1-4 5-9 10-14 15+
- Age: 21-30 31-40 41 or older
- Grades (s)
- M F

Sex: M F

Which of the following is (are) used to place children in reading materials when they enter a new grade level or when they transfer into the school?

1. Basal placement tests
2. Achievement test
3. Informal reading inventory
4. Former basal book placement

Directions: Please respond to each statement below in terms of how valuable you perceive the use of each diagnostic procedure to be.

Value of Use

1 = Never Valuable
2 = Very Seldom Valuable
3 = Seldom Valuable
4 = Sometimes Valuable
5 = Often Valuable
6 = Very Often Valuable
7 = Always Valuable

1. Parent interviews are valuable for identifying children's reading strengths and weaknesses.
2. Informal reading inventories are valuable for identifying students' reading levels.
3. Cumulative records are valuable for identifying students' reading levels.
4. The last basal book completed by the student is valuable for identifying his/her reading level.
5. Standardized reading achievement tests are valuable for providing diagnostic information.
6. Informal reading inventories are valuable for providing information about oral reading ability.
7. Informal reading inventories are valuable for providing information about students' ability to comprehend.
8. Standardized achievement tests are valuable for identifying the reading level at which students can perform.
9. Observation of oral reading behaviors is valuable for providing information about students' word recognition skills.
10. Informal reading inventories are valuable for providing information about students' word recognition skills.
Directions: Please respond to each statement below in terms of how frequently you use the diagnostic procedure referred to.

**Frequency of Use**

1 = Never happens  
2 = Happens less than once per semester  
3 = Happens less than once per month  
4 = Happens less than once per week  
5 = Happens once per week  
6 = Happens two-four times per week  
7 = Happens five or more times per week

1. I refer to standardized test results for diagnostic information.  
2. I administer an informal reading inventory to get diagnostic information.  
3. I refer to cumulative records for diagnostic information.  
4. I refer to the results of the basal skills tests for diagnostic information.  
5. I have parent interviews to get diagnostic information.  
6. I use oral reading to gain diagnostic information.  
7. I use worksheets (workbook or ditto) to gain diagnostic information.
Many have seen a pianist adjust and readjust a piano stool before beginning a performance, or, perhaps, have received instruction as to how to hold a golf club prior to the involved act of swinging at the golf ball. Any complicated skill, it seems, requires proper position if optimum results are to be attained. But few of us realize that proper position is just as essential when engaged in the complicated act of reading as it is when playing a piano or driving a golf ball.

Research by Tinker (1965) has shown that visibility of printed material and reading speed are greatest when copy is held at a right angle to the line of sight. To attain this position when the reader is seated, material should be slanted down at about a 45 degree angle from the vertical or, to put it another way, slanted up 45 degrees from the horizontal. In an unpublished study, Tinker (1965) found that as copy was sloped downward by 15 degree amounts from the 45 degree position, adverse effects quickly became evident.

Harmon (1945, p. 15) reported that fatigue, postural stress, skeletal and even dental problems "show a positive relationship with deviations of balanced posture into which children are forced because of inadequacies of their school seating." Harmon (1945, p. 45) recommended horizontal desk tops for three-dimensional construction activities; a 20 degree incline from the horizontal for reading (this contrasts with Tinker's recommendation of 45 degrees); and an intermediate angle for writing.

Another area of interest that may reflect the adverse effects of reading position centers around myopia. There
is much speculation as to the causes of myopia. One explanation is that the increase in intra-ocular pressure which accompanies nearpoint accommodation activity brings about a gradual lengthening of the eyeball.

Improper body position could accentuate the intra-ocular pressure resulting from nearpoint tasks. According to Harmon (1949, p. 11) nearpoint working surfaces (horizontal) in schools force children to lean forward so that they can "bring the plane of their face into a parallel relationship with the plane of the task." Holding the head in this position can increase intra-ocular pressure. In this connection, Young (1975) reports that gravitational pull raised intra-ocular pressure by 50% when he positioned a monkey into an approximate angle of 30 degrees with its head down. Earlier experiments by Lavinsohn (1914) showed that improper position can cause myopia in monkeys whose eyes are similar to human eyes. Lavinsohn used restraining boxes to position monkeys with the anterior-posterior axis of their eyes in a vertical position, requiring them to look straight down. Without exception, every one of the animals put in this position for six hours daily, six days a week, over a period of a year, developed myopia. Some showed as much as seven diopters of myopia!

Now let us consider the body position of primary grade children during reading circle activity. Very often they are bent over books that are flat on their laps, and in many instances, the books slip between their knees and they read virtually standing on their heads! As children move into junior and senior high school, hundreds upon hundreds of hours are spent bent over books lying flat on the desk or table surfaces.

In light of the evidence, it would seem to be of utmost importance for teachers to recommend a heads-up position when reading. Children should be discouraged from viewing books and other reading material that lie on a horizontal surface. Instead, reading material should be raised from the horizontal position to an angle of 20 to 45 degrees. At 20 degrees (Harmon's recommendation), children can comfortably view what is being read by slightly bending the body and head forward while sitting in an upright position. At 45 degrees (Tinker's recommendation), little or no bending of the body or tilting of the head is re-
quired. In either case, the deleterious effects or dangers inherent in reading while hunched over would be eliminated or at least minimized.

The most sensible solution in bringing about a change in book and body position of children would be to equip schools with desks that have adjustable tops. For a number of years, American Seating of Grand Rapids, Michigan, manufactured desks with adjustable tops that met Harmon standards. These were discontinued and have been replaced by desks that are either level or slanted a mere six degrees. Correspondence with furniture manufacturers reveals that schools are not interested in purchasing desks that have adjustable tops because they are more expensive. The result, as one manufacturer states it, "is that sight-saving features have disappeared from product lines of companies that manufacture classroom furniture."

Since desks with adjustable tops are no longer available, attention must be given to other solutions to the problem. Hoyle Products sells a lap desk consisting of a hard-surface board that is attached to a wedge-shaped cushion which helps maintain the 20 degree slope recommended by Harmon. This "posture-rite desk" can be held on students' laps while they are seated in chairs or on the floor. In addition, it serves as a slanted writing or reading surface when placed on a table or flat desk.

Bookholders are also helpful. These inexpensive devices usually support books at an angle of 45 degrees and are available at most stationery shops. For those who cannot locate or afford commercial bookholders, a homemade variety (see Figure 1) can do the job. Simple directions
for making a bookholder are as follows: Acquire two coat hooks and a piece of plywood 3/4 of an inch thick and 6 x 12 inches in width and length. Smooth the corners with sandpaper and apply a coat of varnish. When dry, screw in the coat hooks with the straight back serving as a brace. The book-holder can be made in an hour, not counting the time for the varnish to dry.

If none of the foregoing suggestions proves feasible, teachers should encourage students who don't maintain proper book position to prop up their books with anything available. Slipping another book, a box of crayons, a purse, etc., directly under the back end of the book being read can help considerably in improving a student's body-book position.

In conclusion, we see that although early research has highlighted the undesirable and often deleterious effects of improper body-book position, today's teachers continue to be completely unaware of the problem. Current professional books dealing with the reading process don't mention it, and classes in the teaching of reading fail to devote time to it. Something must be done to correct this flagrant lag between practice and research. It's time for all teachers to initiate a heads-up approach to reading!

REFERENCES


Teaching introductory classes at a university for even a few semesters makes most instructors aware of problems which are particularly common in these courses. Aside from the usual variety in student ability and interest, introductory students differ widely in their purpose for taking the courses and future aspirations in the area. The majority of introductory level students at liberal arts schools are non-majors and will have no formal academic contact with the discipline beyond the introductory course. Usually, they take the introductory course to fulfill some type of "general education" requirement. Hence, the population of the introductory class is particularly heterogeneous and the instructor is faced with the perennial problem of choosing a "level" at which to teach the course.

While not pretending to have found "the level" for course content, we deal here with attempts to meet individual needs in the area of interest in an introductory psychology course. The problems involved in teaching classroom populations with a mix of abilities has evoked many curricular innovations at the elementary and secondary school levels to individualize instruction. While individualization according to ability may be difficult or even undesirable at the college level (Gardner, 1961), individual allowance for interest and goals is exceedingly important.

One legitimate purpose of the introductory psychology course is to motivate students to a continued interest in psychology so that they may pursue advanced course work, take interest in psychological issues in the community, or read for leisure from the many paperbound book
and periodical publications in psychology. One way that the introductory course might meet and stimulate the individual interests of students is through the course reading material.

Several researchers in reading have shown that the interest value of reading material may not only affect continued interest in the topic but may also affect comprehension of the material as it is read. For example, Fader and McNeil (1968) hypothesized that interest rather than intellect is the chief problem in teaching, so they saturated high school age students' environment with paperbacks, magazines and newspapers. Although the statistical analyses provided little credence to the claim of experimental group superiority in reading comprehension, the authors' and teachers' observations vouched strongly for the favorable influence of interesting paperbacks and creative teaching on the reading comprehension and attitude of the students.

In a second study of the relationship between interest and reading comprehension, Shnayer (1969) found that not only did sixth graders read high interest stories with greater comprehension than low interest stories, but that the effect of interest was more pronounced for low ability readers than for high ability readers. The research design and statistical analysis of Shnayer's study were of sufficient rigor to warrant serious consideration of the findings in other educational settings such as college teaching.

In another excellent study of the relationship between comprehension and interest, Estes and Vaughan (1973) found a strong relationship between comprehension and interest for fourth graders. In the teaching implications of their research they indicated that reading levels are relative to student interest in the topic, and as such are floating or wandering levels dependent on the interest variable. The need for providing for a range of interests and abilities within groups of students, and even within individual students, was aptly pointed out.

Studies such as these on the role of interest in education have not received the attention they deserve. The implications of these findings on interest and comprehension are extremely broad and call for far reaching adjustments in philosophy and practice. To implement these
findings at the college level is a challenge worth all the effort it will take.

The instructional program described by Fader and McNeil should be very usable in introductory psychology; provide students with a list of "good" books in psychology, which can be bought in virtually any paperback bookstore, and let them read as interest dictates. After all, this is probably the way most students will pursue an interest in psychology after a formal course. McCollom (1971) produced a useful list and an approach to teaching the introductory course with this type of reading format. He identified fifteen paperbacks which were judged to be good psychology, interesting and well written. This core list with some additions each semester was the entire reading list for an "honors" introductory class and students were allowed to select several books for reading as interest dictated and were required to write reports on the books. The tone of McCollom's report suggests a good deal of satisfaction, both student and teacher, with this technique. But more importantly, in McCollom's subjective assessment, there were long term benefits in that students continued to read from the book list long after the course was finished. Once provided the model in the classroom for reading well written psychology paperbacks from the popular press, students carried this with them.

Although McCollom (1971) used this technique with an "honors" class, it can be used as effectively with any introductory course, and judging from Shnayer's (1969) research, it may be even more important for the less advanced student. With a revision of McCollom's reading list and a modification of his instructional technique, we tried to individualize course reading for the introductory student.

An introductory course was developed which replaced the standard introductory psychology text with a reading list of 30 popular paperbacks in psychology. Most of the paperbacks were locally available and were chosen for the quality of writing and appropriateness to the lecture portion of the course. As in McCollom's (1971) experience the list changed from time to time based on student interest, but a core of 18 books has been retained for several semesters. The core list included the following:


The lecture topics partly determined which books were kept on the reading list; each of the books corre-
lated to some degree with topics presented in lecture during the semester. During the first class meeting each student was given a detailed outline of the semester's lectures with notations regarding which books correlated with each day's lectures. In this way a student could choose to read a given book during the time that related discussion was occurring in class. Each student chose five selections from the list to be read during the semester. An exception to this concerned the last six books on the list. These were pairs and if the student read one of the books, the mate also had to be read for credit. Dibs and Jordi, Lisa and David were considered as one book, for example. This was done because these books are short, quick reading, and the pair were judged to be similar and complimentary in content.

Before reading each selection students were encouraged to (a) skim the book, (b) predict what the book would be about, (c) formulate a variety of written comprehension questions of their own to guide their reading, and (d) predict the relationship of the book to the corresponding lecture. After reading each book the students then prepared for an oral book report by jotting down on a file card salient information of a psychological nature that they felt they had learned from the book. These reports were given individually to the instructor. Each report was ten minutes long, was graded credit/no credit, and was an opportunity to discuss psychology in a relaxed, one-to-one context where the student could oftentimes bring as much insight to bear on the book as the instructor.

Each report was structured in part by the student's notations on the file card and in part by questions relating the book to other course material. To illustrate with a few selections from the reading list, In the Shadow of Man by J. van Lawick-Goodall might be related to the remainder of the course by the discussion of the appropriate place of chimpanzee studies in "human" psychology, the similarities and dissimilarities between chimp and human behavior, and the varieties of methodology including naturalistic observation necessary for doing work in psychology.

Two themes were stressed in the discussion of The
Ox-Bow Incident by W. Clark. First, the behavior of the mob and its influence on individuals both before and after the lynching was considered in relation to studies of obedience and conformity in social psychology. In addition, students were invited to judge the level of moral development of several main characters in the book, using Kohlberg's (1968) theory of moral development.

Using the brief book, The Mind of a Mnemonist by A. Luria, language was emphasized in the report. The similarities and differences between the mnemonist's memory and the student's memory were discussed relating these, on occasion, to differences in the use of language. Also, a distinction between intelligence and a good memory was explored, a distinction that students frequently did not make on their initial reading.

Finally, the paired selections I Never Promised You a Rose Garden by H. Green and One Flew Over the Cuckoo's Nest by K. Kesey were used to expose students to the experiences of madness and mental institutions. Schizophrenic language was oftentimes singled out for discussion and both books provided a background for a lively discussion of Rosenhan's (1973) research on being sane in insane places. Each selection on the list was carefully considered in this way for its topical integration into the course lecture material.

This method of providing readings for the introductory course has several advantages and disadvantages. First, if the paperbacks are the sole reading for the course, considerable burden is placed on lecture-discussion to give a broad overview of psychology and an organization of its diverse subject matters. But part of the challenge of a creative use of individualized reading is the development of a fitting framework for the students' understanding, not only of the traditional topics in psychology, but of the popular psychology being read. In addition, it has been our experience that not only is it challenging to develop a good lecture framework, but the student response is very positive as they reason for themselves how particular readings fit into a larger conceptual context.

A second burden placed on a class with individualized reading is a student-oriented burden. If traditional examinations are given over lecture material, students who do not
understand a concept developed in lecture have no readily accessible reference material to fall back on for studying that concept. It should be clear, however, that the use of an individualized reading program is not incompatible with the use of a traditional text, especially a shorter version. The important thing is that students be given some choice of reading material as interests and reading abilities dictate. The use of a paperback reading list then could be as an adjunct to a wholly traditional course and textbook, much like a book of readings but with more versatility.

A standard text, however, may not be an essential ingredient for good learning in the introductory course. We compared a section of introductory psychology being taught with individualized readings alone with a control section we taught with a standard text. On a common comprehensive final examination and on final grades the two sections did not differ, $F(1,88) = 1.78$, $p > .10$. So, the lack of a text did not seem to hurt the students with individualized reading. On the other hand, the individualized reading program may have encouraged future reading. We called 50 non-majors from the two classes one semester later to ask if they had read any psychology books since their introductory course. None of the students in the textbook section had read from an "extra credit" reading list distributed at the beginning of their class, while seven of the students in the individualized reading section had read an additional book from the reading list for fun since the course ended. While these data are not strong, they do suggest that an individualized reading program can have a place in the introductory psychology curriculum.

Third, a word about the oral book reports. Having looked forward with near dread to the hundredth report on Dibs in a given semester, we are aware of the need to develop alternatives to relieve the tedium of oral reports for the instructor. Several alternatives that have proven very successful include (a) written reports, especially for students who have difficulty articulating ideas under pressure, (b) assigning book report responsibilities to teaching assistants, (c) conducting the reports in small groups, and (d) allowing students, who have done a good job in understanding a book, to conduct oral reports on that book with classmates. The last alternative promotes learning through teaching and students are consistently highly reliable when
given such responsibilities.

The book reports can also be used effectively to individualize instruction in small groups. For instance, students who have chosen one book might participate in small discussion groups with students reading a different book to compare and contrast the books. In this way the instructor could aid in building critical thinking skills in psychology based on the students' initial interest in reading materials. As analytical abilities develop and a record of reading interests and abilities is established the instructor can further aid students in the selection of readings and the formulation of appropriate goals in the reading program.

Finally, one feature of individualizing reading, which outweighs all others, is the time spent talking psychology with students on a one-to-one basis. Depending on the number of book reports assigned, every student may haunt the instructor's office from ten to sixty minutes a semester and that much time goes a long way toward changing the nameless faces in a large lecture into people.

REFERENCES


When and how to begin reading instruction has been a subject of controversy for many years. Early studies (Morphett and Washburne, 1931; Dolch and Bloomster, 1937) suggested that a mental age of six or seven years was required before children were ready to begin to read. This resulted in reading instruction being delayed for many children and in many developmental activities such as distinguishing shapes and colors, sequencing pictures and even such physical activities as crawling and skipping being considered "reading readiness".

In the seventies, we went through a period in which readiness for reading focused on a long list of isolated skills. Correlations between letter-name knowledge and reading success (de Hirsch, Jansky and Langford, 1966) and a belief that letter-sound knowledge was essential to beginning reading success resulted in programs in which children were expected to learn all letter names and most of the sounds before they were ready for reading instruction. But letter-name knowledge does not insure success in reading. Many experts (Venezky, 1978; Gibson and Levin, 1975) suggest that the ability to name the letters is indicative or symptomatic of a vast amount of linguistic knowledge. Children who know letter names and some letter sounds are generally children who come from "print-rich" environments in which children are read to and given implements for and encouragement to write at an early age (Durkin, 1966).

Research in the seventies and eighties (Mason, 1980; Clay, 1972) indicates that children can learn to read at early ages and that opportunities to write words and letters
contributes to children's early development as readers. Mason (1984) summarizes the research and trends in reading readiness and early reading and then draws the following conclusions:

Many children begin to learn about how to read at a very early age through being read to, learning to identify and name letters and words and learning to print, spell and use printed labels in their drawings. This early knowledge is positively related to later reading and should be encouraged in kindergarten and preschool programs. Hence, preschool teachers should not transform first grade materials but should rely on program ideas arising from a less formal approach to learning. (pp. 536–537)

To try to develop a less formal yet structured approach to early reading, I have worked with many kindergarten and first-grade teachers over the past several years. Our goal was to put kindergartners and beginning first graders in situations in which they could learn about print. Of course, we included many book-reading and language experience activities. We wanted to find a way, however, to get the children to read and write some words which were meaningful to them. Through reading and writing the words, we hoped they would learn letter names and sounds in the "natural" way children appear to who learn to read before being given any formal instruction. We also wanted children to learn the print conventions (left to right, top to bottom, etc.) and to come to understand the terms or jargon (word, letter, same, different, first, last, etc.) we use as part of our reading instruction. We wanted to use words in the beginning that would be important or "key" words to the children.

Five- and six-year old children are very egocentric beings. Their worlds revolve around them and their friends. We decided to capitalize on this egocentrism by using the names of all the children in the class as the first words they would all learn to read and write. From these words, we would develop letter-name and sound knowledge, visual discrimination, auditory discrimination, print conventions and jargon and a host of other skills.

If you could visit the classrooms in which teachers are using the names as a springboard to literacy, you would
find a great variety in the ways in which these names are used and in the types of activities done. In order for you to have some ideas about the variety of possible activities and the linguistic understandings that can be built using the names, this article presents one possible ten-day sequence of activities.

Prepare for these activities by writing all the children's first names (with initials for last names if two names are the same) with a black permanent marker on sentence strips. Cut the strips so that long names have long strips and short names, short strips. Each day, reach into the box and draw out a strip. This child becomes the "special" child for the day and the child's name becomes the focus of many activities. Reserve a bulletin board and add each day's names to the board. (Some teachers like to have children bring a snapshot of themselves, or take pictures of the children to add to the board as the names are added.)

Day One. Draw out one name. Once you have drawn the name, there are many activities you may do each of which develops different skills and concepts. You may have the special child come up front and have the children ask that child questions about his favorite things to do, foods to eat, family, etc. This develops oral language and questioning skills and allows the children to get to know each other at the beginning of the year. Some teachers write an experience chart story based on what the child answers to the questions. As children watch you write, they observe that talk can be written down and the conventions of how language is written.

To develop specific skills, you will want to focus children's attention on the name and the letters in the name. To illustrate, let's assume that the first name drawn is David. Tell the children that this word is David and that it takes many letters to write the word David. (Young children are often confused about what words and letters are and can be helped to understand this jargon using the concrete examples of the names.) Have them count the letters as you point to each. Say the letters in David, D--a--v--i--d, and have the children chant them with you. Help them to see that David begins and ends with the same letter and that the d looks different because one is a capital D and one is a small d. (Again, notice all the jargon--begins,
ends, same, different, capital, small - children must learn!)

Take another sentence strip and have children watch as you write David once more. Have them chant the spelling of the letters with you. Cut the letters apart and mix them up. Let several children come up and arrange the letters in just the right order so that they spell David. Have the rest chant to check that the order is correct.

Give each child a large sheet of drawing paper and using crayon, have them write David in large letters in crayon on one side of the paper. Tell them where to begin to write. (Some teachers make a star on the left side of the paper.) Model at the board how to write each letter as they write it. Do not worry if what they write is not perfect and resist the temptation to correct what they write. Young children who write at home before they come to school often reverse letters and make them in funny ways. The important thing they are doing is understanding that names are words you can write and you use lots of letters to write them. Have them chant the letters in David as they point to each letter they have written. Let them each draw a picture of David on the back of this paper and let David take all the pictures home.

Day Two

Draw another name--Catherine. Have Catherine come up and do whatever oral language and experience chart writing you want to do. Say the letters in Catherine as you point to them and have the children chant them with you several times. Help the children to count the letters and to notice which letter is first, last, etc. Help them to see that Catherine has two e's and that they look exactly the same because they are both small e's. Write Catherine on another sentence strip and cut it into letters. Have children arrange the letters to spell Catherine and chant to check that it is correct just as they did with David.

Put Catherine on the bulletin board under David and compare the two. Which has the most letters? How many more letters are in the word Catherine than in the word, David? Count to see. Which is the longest word? Which takes the longer to say and more space to write? Does Catherine have any of the same letters that David has? What different letters does Catherine have? (Again, notice
the jargon--most, more, longest, same, different!)

Finish the lesson by having everyone write Catherine as you write it on the board. Have Catherine pictures drawn and let Catherine take them home.

Day Three

Draw the third name--Debbie. Do the oral language and chart activities as you wish. Do the chanting and letter rearranging. Be sure to note the two e's and b's and to talk about first and last letters, etc.

As you put Debbie on the bulletin board, compare it to both David and Catherine. This is a perfect time to notice that both Debbie and David begin with the same letter and the same sound. Say some other words and have the children point to David and Debbie if the words begin with the same sound as David and Debbie. Compare all names to see which is longer and which letters in each are the same and different.

Finish the lesson by having the children write Debbie as you model at the board and draw pictures for Debbie to take home.

Day Four

Draw the fourth name - Mike. Do all the activities as before, including comparing the four names. David has lost the status of having the shortest name but his is still the only name with a v! Be sure to help children see these distinctive features as they become quite involved with this. If you have a Zeb in your room, he is apt to point out that he will soon unseat Mike as shortest and Veronica will point out that she too has a V. Everyone is eager for the special day when their name is drawn!

When you have a one syllable name with which there are many rhymes (Mike, Joe, Sue, Pat, etc.), seize the opportunity to help the children listen for words that rhyme with that name. Have Mike come up and say pairs of words (Mike/bike; Mike/ball; Mike/cook; Mike/hike). If the pairs rhyme, everyone should say "Mike". If not, they should shake their heads, "No."

Day Five

Review the four names and the concepts taught. There are many fun review activities. Begin by having the children
chant and write each of the names. Review who has the longest, shortest name, etc. Help the children look for the names that have an a - b - c - d - etc. You may want to go through the alphabet song and notice that with just four names, you have names containing half the alphabet letters. Make up some riddles about one of the four children. (This is a girl. She is very helpful. Her name has the most letters.) Let the children guess who it is and then make up their own riddles.

Give five children large sheets of paper on which you have written--one to each sheet--the letters in David. Let them come up and arrange themselves in the correct order so that they spell David's name. Have the other children close their eyes and mix up the order of the children. Let a child come and reorder them so that they again spell David. Continue this with different children arranging themselves to spell the other three names.

Begin a word bank for each child. Each child should have a shoe box. Give each child four index cards on which you have written in permanent marker the four names. Let the children take turns spelling one of the names and having the others find that name and hold it up.

Day Six

Draw another name--Ceretha. Do the various activities you do for each name and the comparative activities with all the other names. This is a perfect opportunity to help children develop very early a set for diversity when it comes to letter-sound relationships. Both Catherine and Ceretha begin with the letter c but they do not begin with the same sound. Many words that begin with a c have the sound you hear at the beginning of Catherine, but some words have the sound you hear at the beginning of Ceretha. Have Catherine and Ceretha stand at different parts of the chalkboard. Tell the class that you are going to say words that begin with the letter c. Some of these c words have the sound you hear at the beginning of Catherine. Others have the sound you hear at the beginning of Ceretha. Say some words (cat; celery, circus; candle; city, etc.) and have the class point to Catherine or Ceretha to show which beginning sound they hear. Write the words next to Catherine or Ceretha as the children point.

Day Seven
Draw another name—Bill. When you have done the activities you do with all names, take advantage of the many words that rhyme with Bill to review the concept of rhyme. Say pairs of words (Bill-hill; Bill-fort; Bill-tall) have the children say "Bill" if they rhyme and shake their head if they don't. Next, let both Mike and Bill come up. Say words which rhyme with one or the other and have the children point to the child whose name makes the rhyme. You may want to do some riddles. (This is a word that rhymes with Mike and is something he can ride. This is a kind of sour pickle and it rhymes with Bill).

Day Eight

Draw another name. Show the children the strip but not the name. Have them guess whose name it could be based on the size of the strip. Then, let them play a version of "20 Questions" to figure out whose name it is. (Is it a boy? Does it have a t? Etc.) When someone guesses the name, Joseph, continue with the other activities.

Day Nine

Draw another name—Zeb. Do the usual activities. Then have the class listen as you say words (zoo, bear, zebra, camel, zipper) to hear if they begin like Zeb. Have Zeb and two other children whose names have clear initial consonants such as Bill and Mike come up. Say words that begin with z, b, or m. Have everyone write the first letter of Zeb, Bill or Mike to show they can hear which name it begins like. To help children isolate the sound they are listening for, say something like, "Yes, banana begins with a b like Bill. If banana began like Zeb, it would not be a banana, it would be a zanana!" This is silly but so are five- and six-year olds and it does hold their attention!

Day Ten

Review all eight names. Do many of the activities you did on Day Five. If you go through the alphabet to see how many letters you have, you will find that will the eight names, you have letters for all but i, j, k, l, w, x and y. Be sure and count to find longest names, letter used in most names, etc. Many teachers like to graph this information. You may want to count to see how many letter all eight names have together or to do some simple addition. (Mike + Zeb; 4 + 3 = 7) You may want to make a ditto
with the letters of the names scrambled and have the children cut the letter apart and paste them in the correct order. Be sure to give the children the four names to add to their word banks. This word bank is tangible, mounting evidence to the children that they can read!

Teachers who systematically use the names of the children in their classrooms to develop a store of key words children can read and write and to teach the many linguistic concepts children need to progress in reading report that the children are universally enthusiastic about their names and successful in learning the names and other concepts. There are as many variations on the name activities as there are different teachers who use them. All teachers feel, however, that in order for the children to learn the names and the other linguistic concepts, the program must be done systematically and regularly and a variety of activities must be carried out with each name. The chanting of the letters in the names and the writing of the names are especially important because they allow the children to learn the names through auditory and kinesthetic channels as well as the more common visual channels. The comparative activities help children develop many important linguistic concepts as well as an understanding of the jargon we use as we teach reading. Children learn the highly abstract idea of beginning sounds and rhyme better when they can attach these to the concrete person who sits next to them. The current thinking and research about early reading and reading readiness suggests that children become ready as they read and write words that are meaningful to them. To promote this interaction with print, the names are a natural and available commodity in all classrooms.

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TEXT ORGANIZATION AND STRUCTURE IN SCIENCE TEXTBOOKS

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The process approach to reading comprehension has received much attention in the literature (Anderson, et al., 1985; Durkin, 1978-9; Johnson, 1983; Pearson, 1985; Starr & Bruce, 1983). Recent research in the area of schemata theory, one aspect of the reading process, has resulted in a closer examination of the importance of text organization and structure. According to Meyer (1980), the organization and structure of the text has a great impact on the reader's comprehension.

Concomitant with the development of reading as a process has been the interest by educators in developing higher level thinking skills which are an essential part of problem solving. Science educators, in particular, have focused on the development of problem solving skills as a major component of successful science programs.

This study examined the text organization and structure of fourth and sixth grade science textbooks. This included prereading questions, advance organizers, margin notes, and type of text structure. In addition, chapter activities were classified as to the degree of problem solving skills developed by ranking the activities according to Bloom's (1956) taxonomy of cognitive skills.

Text Organization and Structure

Pre-reading question and advance organizers serve to cue the learner's attention to key ideas that will be discussed later in the text. Pre-reading questions have long been included as part of the directed reading activity (DRA)
outlined for basal reader lessons (Lapp & Flood, 1983). Such questions set a purpose for reading as well as helping to establish background information necessary for the reader to comprehend the passage.

Advance organizers, such as headings, also alert the reader to important ideas and concepts which follow in the text. Research by Mayer (1983) indicated that key concepts that were repeated and preceded by advance organizers tended to increase recall and performance on problem solving tasks. Mayer also found the need for repetition of concepts was reduced when the use of advance organizers became more frequent.

Identifying the structural organization of a text has also been proven to be an effective reading strategy (Niles, 1974). For example, a reader who notices a writing pattern of comparing and contrasting will better understand the text being read. Mayer (1980) found that when familiar text structures were used to disseminate conceptual information to the reader, comprehension increased. The type of text structure Meyer identified as most commonly used in elementary level text materials were: problem/solution; comparison; antecedent/consequence; description; and collection (sequencing). Research points out that the ability of the reader to predict the type of text structure used by the author will affect how much information is retained (Meyer & Freedle, 1984; Thorndyke, 1977).

The importance of signalling in text material by the author to alert the reader to the type of text structure used has also been emphasized (Meyer, 1980). Signalling statements are usually presented in preview and summary statements. Signalling statements reveal information pertaining to structure rather than content. For example, a preview statement may be "The following is a comparison of..."

**Problem Solving**

Most educators agree that problem solving is a way of thought where people seek information and understanding through a set of processes (Welch, 1981). Science educators were surveyed to discover what they considered to be the most important outcome of their teaching efforts. Problem solving was rated as the highest desirable outcome (Chipetta & Russell, 1982).
The benchmark for problem solving is Dewey's (1910) five step model. This model includes: 1) identifying the problem; 2) forming a hypothesis; 3) collecting and analyzing data; 4) drawing conclusions; and, 5) testing the hypothesis.

In writing about the conceptualization of problem solving, Ausubel (1963) maintained that problem solvers who possess an adequate repertoire of prior knowledge for a given problem will be more likely to successfully complete the task. Thus, students who have had experience with magnets, for example, will better understand magnetic fields than students who lack such experience. Research by Thorsland & Novak (1974) supports Ausubel's theory.

The relationship between the conceptual knowledge of the individual and the individual's knowledge of procedures has been studied by Greeno (1978). Effective problem solving, according to Greeno, requires a union between the learner's ability to: a) execute the proper problem solving strategy, and, b) bring relevant conceptual knowledge to bear on a specific task. The interaction of conceptual knowledge (text content) with problem solving skills (processes) is significant in problem solving in science. Therefore, it is important that science text materials include problem solving as part of the text structure. This raises the question: Does the text promote the development of problem solving skills through an agreement between the text organization and structure with the presentation of concepts?

Method

Science text material for fourth and sixth grades was randomly selected from the following five science series: 1) Harcourt, Brace, Jovanovich's Science (1985); 2) Heath's Heath Science (1984); 3) Holt, Rinehart, and Winston's Science (1986); 4) Merrill's Accent on Science (1985); and 5) Scott Foresman's Science (1984). The presence of pre-reading questions as well as whether or not advance organizers (paragraph headings, etc.) were used were examined for each series. In addition, margin notes referring to key concepts were noted.

The text was also analyzed to determine which text structure was used by the author as defined by Meyer (1980). The five text structure patterns were: 1) problem/solution; 2) description; 3) comparison; 4) antecedent/consequent; and, 5) sequencing. Lastly, chapter activities were
described by the problem solving skills used. Each activity was analyzed in terms of Bloom's (1956) taxonomy of cognitive thinking skills: 1) knowledge; 2) comprehension; 3) application; 4) analysis; 5) synthesis; and, 6) evaluation.

Text Organization

Pre-reading questions were included in two of the series: Harcourt, Brace, and Jovanovich, and Scott Foresman. These questions were clearly presented at the beginning of the chapters either as a separate list or implied in an introductory paragraph.

Advance organizers were used by all five of the publishing companies examined. Headings and subheadings were typically presented in bold print. However, Harcourt, Brace, and Jovanovich and Heath were the only series that failed to include margin notes to highlight the meanings of important concepts. (See Figure 1 below)

Figure 1
Pre-Reading Questions, Advance Organizers, and Margin Notes for Key Concepts in 4th and 6th Grade Science Textbooks

<table>
<thead>
<tr>
<th>Publishers</th>
<th>Pre-Reading Questions</th>
<th>Advance Organizers</th>
<th>Margin Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harcourt, Brace Jovanovich (1985)</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Heath (1984)</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Holt, Rinehart, and Winston (1986)</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Merrill (1985)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Scott Foresman (1984)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Text Structure

The five text structures examined in the study were those defined by Meyer, enumerated on the previous page. The degree to which the structures were used varied greatly. At the fourth grade level, Harcourt, Brace, Jovanovich, Mer-
<table>
<thead>
<tr>
<th></th>
<th>Knowledge</th>
<th>Comprehension</th>
<th>Application</th>
<th>Analysis</th>
<th>Synthesis</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Harcourt, Brace</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Jovanovich (1985)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fourth</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Sixth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Heath (1984)</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Minor</td>
<td>Minor</td>
</tr>
<tr>
<td>Fourth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sixth</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Minor</td>
<td>Minor</td>
</tr>
<tr>
<td><strong>Holt, Rinehart</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>and Winsten (1986)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fourth</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Sixth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Merrill (1985)</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Minor</td>
<td>Minor</td>
<td>Minor</td>
</tr>
<tr>
<td>Fourth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sixth</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Scott Foresman (1984)</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
rill, and Scott Foresman all relied heavily on the descriptive and sequencing text patterns. The text structures in Holt were predominantly descriptive, sequencing, and antecedent-consequent. Descriptive text was prevalent in Heath which, unlike the other series, included comparison at the fourth grade level.

The examination of the sixth grade level materials revealed that four of the five series utilized descriptive and sequencing text as the predominant structures; Heath being the only exception. However, both Holt and Merrill included antecedent/consequent. Merrill also had a strong representation of comparison with some inclusion of problem/solution.

Cognitive Level of Chapter Activities

Activities tended to emphasize knowledge and comprehension cognitive levels for all five series examined. At the fourth grade level, Harcourt, Brace, Jovanovich, Holt, and Merrill had little or no activities at the analysis, synthesis, and evaluation levels. These are levels considered to be vital for problem solving. Heath and Scott Foresman contained higher level thinking skills in terms of analysis, synthesis, and evaluation in the chapter activities, thereby having students utilize more problem solving skills.

Harcourt, Brace, and Jovanovich had knowledge, comprehension, and application level activities in the sixth grade text material. Heath, Holt, Merrill, and Scott Foresman all had activities at all six levels of Bloom's taxonomy (See Figure 2, next page). Only Heath and Scott Foresman included activities which require higher level thinking at both the fourth and sixth grade levels.

Conclusion

As stated earlier, effective science instruction involves a healthy "marriage" between concept development and the processes of science--problem solving. In relationship to the organization and structure of text structure, this study reveals some promising results. There was a fairly consistent use among publishers of pre-reading questions and advance organizers to develop conceptual knowledge as advocated by Mayer (1983). In addition, margin notes to further explicate key concepts were also utilized by most of the publishers.

The use of varying text structures identified by Meyer
However, were not used extensively. Publishers tended to limit the text to descriptive and sequencing structures as opposed to problem/solution, antecedent/consequent, and comparison structures. Thus, this study indicates the need for more varied use of text structures in content development of elementary science text materials.

Finally, this study revealed few activities that utilized analysis, synthesis, and evaluation to any extent. These higher level thinking processes are involved in problem solving and the application of such skills in activities is important. By far the majority of activities in all of the series included hands-on comprehension and application level work.

REFERENCES


The basal reader is the most powerful tool and pervasive force affecting reading instruction in the elementary schools throughout the nation. For 95 percent of the schools in the United States, the basal reader is the major component of the reading program (Yarington, 1978). So widely used and so heavily relied upon, it has been utilized by many elementary classroom teachers as the total reading program (Shannon, 1983); or at the very least, it has been considered a vehicle for standardizing reading instruction by establishing objectives and instructional strategies as well as methods to test mastery in reading skills (Auckerman, 1981).

The historical dominance of the basal reader in elementary classrooms has kept it under scrutiny, leading researchers to findings that have practical applications for effective reading instruction. One such finding has described teachers' over-reliance on these texts (Durkin, 1984; Rosecky, 1978) a type of reading instruction that employs a "strict application of commercial materials," where there is little maintenance of control, content, method, and pace by teachers (Shannon, 1983). Other researchers have focused on the content and language of stories in basals (Beck, 1984; Bettelheim & Zelan, 1982; Bruce, 1985; Green, 1984) charging that these texts, so thoughtfully written for the reading program, may indeed be counterproductive in developing students' comprehension for stories.

This article, therefore, proposes to identify some of the trouble spots in basal stories caused by the uses of vocabulary control and readability formula, the inherent features of commercial texts. Additionally, for a more ef-
effective employment of the basal reader, specific suggestions will be made that will enable teachers to help their young readers to construct meaning from stories that are less than perfect.

Effects of Vocabulary Control and Readability Formulas

Vocabulary Control

One distinctive characteristic of the basal reader is vocabulary control which publishers have traditionally used as their major sales pitch to prospective buyers. Vocabulary control is achieved through (1) the regulation of the number of new words in a story and (2) the limitation of words to a "high-frequency" list of words. The obvious advantage is that students' over-exposure to the same words should result in automaticity for word recognition.

However, the disadvantages that vocabulary control presents are numerous. Since ideas are represented by words, such a restriction on words within a story would obviously result in similar restrictions on ideas. To explain further, diluted ideas appear in simplified text, because all too often, difficult lexical items do not always have precise synonyms on the "high frequency" list (Davison & Kantor, 1982). So meaning is adjusted. When the altered concepts are central to the story, text is particularly troublesome for the young students. This "roundabout language" may result in blocking the readers' comprehension of the story (Beck, McKeown, McCaslin, 1981).

Another concern is the need for the students to expand their knowledge base through literature. Simplified texts do not challenge their readers with the heavy conceptual load which demands greater text processing, needed to foster reading fluency in students (Beck, 1984). A steady diet of stories constructed on a small body of word concepts would hamper development and growth of students' knowledge structure.

The late E. B. White, author of Charlotte's Web and master of prose has left a legacy to authors of children's literature that needs to be followed:

In Charlotte's Web I gave them a literate spider, and they took that. Some writers for children deliberately avoid using words
they think a child doesn't know.  
This emasculates the prose, and  
I suspect bores the reader (White, 1969).

Readability formula

In addition to vocabulary control, another major feature of basal readers is graded text whereby text difficulty is measured by a readability formula. One assumption of such formulas is that word difficulty and sentence length determine text comprehensibility. Essentially, there are three ways readability formulas are used: first, grade-level scores are derived through the application of a formula to written text; second, children's literature may be modified or adapted for a grade level through the use of a formula; and third, stories are written using a readability formula. All of these uses of readability formulas with basal texts have generated much criticism.

One major problem in describing text with a grade-level score is that it tends to oversimplify the nature of the reading process (MacGinitie, 1984). While readability formulas account for some factors of text difficulty, they overlook more powerful text features that affect comprehension--number of different word concepts (Antonacci, 1982), the number of idea units within sentences (Kintsch & Keenan, 1973), the syntactic complexity of sentences (Botel, Dawkins, & Granowsky, 1973), story structure (Stein & Glenn, 1979), to name only a few. How could language, so complex, variant, and qualitative in nature be reduced to a single quantitative symbol to describe its comprehensibility?

More problems are created when authors are directed to modify children's literature for a particular grade level. The adapted version may become the more difficult text as syntactic changes result from the shortening of sentences (Davison & Kantor, 1982; Rubin, 1985). For example, a compound sentence containing a connective, may be rewritten as two shorter sentences with the connective deleted. Explicit links are needed to form a tight network among sentences, producing more readable text (Moe & Irwin, 1986). To illustrate, in the following compound sentence, (a) may be rewritten as two simple sentences (b) in order to simplify text suggested by the
rewrite rules of a readability formula.

(a) The boy ran fast, because he was chased by a pack of wolves.

(b) The boy ran fast. He was chased by a pack of wolves.

The connective "because" in sentence (a) signals the reader to comprehend the cause-effect relationship between the two ideas within the sentence. Without the explicit link "because," as in the rewrite (b), the reader must infer the cause-effect relationship. Therefore, shortening sentences may interfere with the reader's understanding of critical relationships within text.

All too often, and especially for primers, readability formulas guide the authors in writing text; for example, through the manipulation and the counting of words a story becomes a "good fit" for the primer level. These stories have received the loudest criticism of all--What has been created is empty text, stories with no meaning (Bettelheim & Zelan, 1982); Stories written for primers contain prose that is colorless and artificial (Green, 1985); Basal stories often lack structure and are incomplete (Bruce, 1984).

It is the story, however, that is at the heart of every reading program and appropriately so. Children hear stories long before they come to school, stories are a very natural form of entertainment, good stories motivate children to learn to read and to continue reading, and, stories are central to our conceptions on how one learns to read. Therefore, a student's first experiences with a story in print must allow for the construction of meaning. However, because of the problematic aspects of basal stories--whose authors are guided in their writings by readability formulas--the task of constructing meaning from primer stories becomes all too difficult for our novice readers.

A look at how stories are structured is critical in identifying those trouble spots in primers that may disable children's comprehension. Considerable research over the past decade has generated a definition of a story as "an idealized internal representation of parts of a typical story and the relationship among those parts" (Mandler &
According to Stein and Glenn (1979), the elements or parts of the story that depict the episodic story structure are the setting and the episode. The setting includes the main character(s), time, and place, that is, the protagonist and the context in which the story takes place. The episode includes all the events that lead the protagonist toward goal attainment or nonattainment as well as his responses to the outcome of the action. A story that is complete and well-structured includes all of these elements in a predictable sequence.

Children develop their own grammar or schema for story only after hearing well-structured stories over and over. They use their story schema to facilitate their understanding for story. The reader's story grammar provides them with a framework to anticipate the protagonist's actions, to organize story information, and to recall story events (Mandler & Johnson, 1977; Stein & Glenn, 1979). However, comprehension for story occurs only when there is a match between both story grammars, that of the reader and the text. Thus, children have a better remembrance for stories whose elements are intact, that is, for stories that conform to the "prototype" story structure (Stein & Glenn, 1979).

Stories in basal readers have been criticized as being incomplete messages. In their investigation, Beck, McKeown and McCaslin (1981) found examples of stories in primers where important story elements were missing. In one story, the researchers cite an action, serving as the initiating event or the first event within the story episode, deleted from the story. To construct meaning around this incomplete story, the reader must infer the missing story part. However, these inferencing demands go beyond the cognitive capabilities of young novice readers (Paris & Lindauer, 1976) who find filling in missing story parts far more difficult than intermediate students (Stein & Glenn, 1979).

Comparing primer stories, where text is written by authors guided by readability formulas, with intermediate basal stories, where the grade level of the text is described through the application of a readability formula; reveals that higher restrictions of text controls on primers cause these stories to violate story structure more fre-
quently than intermediate basal stories. Then it is more likely that the text processing demands for younger readers will be greater than for older readers--a greater number of stories with deleted story elements requires readers to make more inferences. When teachers are aware of the omitted story elements, they will be able to help students to construct meaning from these stories.

If we want our instructional practices to work with our reading materials effectively to develop fluent readers, what is needed is a thorough knowledge of the materials we employ. Sensitivity to the strengths and weaknesses of the basal texts will enable classroom teachers to modify their teaching strategies, to select appropriate supplementary literature, and to adjust curriculum objectives, thereby making the goals of the reading program attainable. Following are specific suggestions for classroom teachers who employ basal readers in their delivery of reading instruction.

Strategies for Developing Children's Understanding of Stories

Provide students with the missing signal words to help them make the necessary connections between ideas.

When sentences are shortened and explicit connectives, such as, because, when, if, or but, are deleted, critical relationships between two or more sentences must be inferred. Facilitate the children's understanding for the related ideas through a discussion of the target concepts, supplying the deleted explicit connective.

Supply correct word concepts to elucidate ambiguous meanings within the story.

When meaning is diluted through vocabulary control, the teacher can make a deliberate effort to suggest the intended meaning by using the correct synonyms. For example, if a story is about a race, appropriately called a "marathon," but this word was not on the high-frequency list, the substitute phrase "long race" might be used in print for the word "marathon." In the pre- and post-story discussions, use "marathon" synonymously with the phrase "long race;" extend the discussion to develop precise concepts about a marathon, and relate this knowledge to children's background experiences as well as to the events
within the story.

Help children get a sense of meaning for the story by supplying any missing story element.

Do not trust that a beginner reader will be able to infer a story element that is implicit and that is needed to construct meaning around the story. For example, if the setting is not explicitly described, yet it is critical to comprehending the story, tell the children where the story takes place, discussing it in detail, before they read the story. Beck, McKeown, and McCaslin (1981) suggest an alternate view of primer stories; the reading lesson might incorporate the basal story as part told through print, the rest supplied through teacher discussion and questioning.

Create a literary environment in the classroom.

To do this, become acquainted with the best works of children's literature and make them available within the classroom. Set a time aside daily when children and teacher luxuriate in free reading.

Rather than basal stories, make daily storyreading a central part of reading program.

Since it is a priority, do not place this literary event at the end of the day when everyone is tired and anxious to go home. Make storyreading the main attraction! Provide thoughtful literature selections with your best story delivery. Remember, this is one of your most important teaching strategies. When children read and hear complete and structured stories, their story schemas are further developed, a facilitator in story comprehension.

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Green, G. M. "On the Appropriateness of Adaptations in Primary-Level Basal Readers: Reaction to Remarks by Bertram Bruce. (op cit).


MacGinitie, W.H. "Readability As a Solution Adds to the Problem." (op cit)


Aristotle stressed the importance of studying the elements used in literature and public speaking, such as cadence, style, content, and structure. Aristotle believed that the identification and use of effective conventional patterns by authors, speakers, readers, and listeners would aid communication. This ancient idea has been popularized by recent investigators who have described and examined the effects of story grammars (Mandler & Johnson, 1977; Rumelhart, 1975; Stein & Glenn, 1979; Thorndyke, 1977). While modern story grammars differ slightly from one another, each is an attempt to capture the intuitive notions that people have about the elements and sequence that essentially constitute a well-constructed narrative. The results of recent studies have shown that children and adults do predict, comprehend, and remember better when they process stories that conform to story grammars (Fredericksen, 1975; Kintsch, 1974; Mandler, 1978; Mandler & Johnson, 1977; Rumelhart, 1975; Stein, 1976; Stein & Glenn, 1975, 1977a, '77b, '79; Whaley, 1981).

Since an understanding of narrative story structure can be beneficial, teachers should ensure that they make students aware of the structure of stories. Teachers should encourage students to recognize story structure in models and to use story structure when they produce stories. Exposing students to exemplary models is particularly important. The question remains, however, whether teachers do select well-constructed stories to present to students.

Shannon (1982) and Durkin (1978–79; '83) reported that teachers rely heavily on commercial materials for reading instruction. Basal series, in particular, are utilized. If the stories in basal readers illustrate conventional story structure, then it could be concluded that teachers are
exposing students to well constructed stories. Unfortunately, little evaluation has been made in this area. As a result, the purpose of the present investigation was to evaluate two basal reading series to determine whether their stories satisfied the requirements of a conventional story grammar.

Methodology

In this investigation, the story grammar proposed by Prince (1973) was selected. Prince described a well constructed narrative story as one which minimally consists of three conjoined events. The events appear in chronological order and are connected by three explicit or inferred conjunctive features. The first and third events are stative, while the second is active. The third event is the inverse of the first. Practically speaking, a narrative story must have a beginning that presents a problem and a middle where action is taken that causes the resolution which is stated in the end.

Two frequently used basal series, the Houghton Mifflin Reading Program (1983) and the Scott, Foresman Reading Program (1985), were selected for evaluation. All readers from the first grade level through the eighth grade level were read and evaluated. Texts written for the pre-primer and primer levels were not evaluated, since they rarely intend to portray complete stories due to inherent restrictions in vocabulary and length. Poems, articles, skill lessons, and plays, were not evaluated since they are not narrative stories.

Table 1

<table>
<thead>
<tr>
<th>Entry Category</th>
<th>N</th>
<th>MetGrammar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stories</td>
<td>235</td>
<td>213 (91%)</td>
</tr>
<tr>
<td>Poems</td>
<td>116</td>
<td>-</td>
</tr>
<tr>
<td>Articles</td>
<td>178</td>
<td>-</td>
</tr>
<tr>
<td>Skill Lessons</td>
<td>76</td>
<td>-</td>
</tr>
<tr>
<td>Plays</td>
<td>11</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>616</td>
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</tr>
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</table>
Table 2  Scott, Foresman Reading Program

<table>
<thead>
<tr>
<th>Entry Category</th>
<th>N</th>
<th>Met Grammar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stories</td>
<td>251</td>
<td>217 (87%)</td>
</tr>
<tr>
<td>Poems</td>
<td>109</td>
<td>-</td>
</tr>
<tr>
<td>Articles</td>
<td>149</td>
<td>-</td>
</tr>
<tr>
<td>Skill Lessons</td>
<td>181</td>
<td>-</td>
</tr>
<tr>
<td>Plays</td>
<td>12</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>702</strong></td>
<td></td>
</tr>
</tbody>
</table>

Results

Table 1 reports the number of stories, poems, articles, skill lessons, and plays in the Houghton Mifflin series, and the number and percentage of narrative stories which met the story grammar. Table 2 reports the same information for the Scott, Foresman series.

Tables 3 and 4 report the number and percentage of stories which satisfied the requirements of the grammar by reader.

Table 3 - Houghton Mifflin Reading Series

<table>
<thead>
<tr>
<th>Text</th>
<th>Grade Level</th>
<th>Met Grammar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunshine</td>
<td>1</td>
<td>8/12 (67%)</td>
</tr>
<tr>
<td>Moonbeams</td>
<td>2</td>
<td>6/10 (60%)</td>
</tr>
<tr>
<td>Skylights</td>
<td>2</td>
<td>11/16 (69%)</td>
</tr>
<tr>
<td>Towers</td>
<td>3</td>
<td>13/15 (87%)</td>
</tr>
<tr>
<td>Spinners</td>
<td>3</td>
<td>16/19 (84%)</td>
</tr>
<tr>
<td>Weavers</td>
<td>4</td>
<td>15/17 (88%)</td>
</tr>
<tr>
<td>Gateways</td>
<td>4</td>
<td>25/27 (100%)</td>
</tr>
<tr>
<td>Banners</td>
<td>5</td>
<td>27/27 (100%)</td>
</tr>
<tr>
<td>Beacons</td>
<td>6</td>
<td>25/25 (100%)</td>
</tr>
<tr>
<td>Emblems</td>
<td>7</td>
<td>35/35 (100%)</td>
</tr>
<tr>
<td>Awards</td>
<td>8</td>
<td>32/32 (100%)</td>
</tr>
</tbody>
</table>
Table 4 - Scott, Foresman Reading Series

<table>
<thead>
<tr>
<th>Text</th>
<th>Grade Level</th>
<th>Met Grammar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hang On To Your Hats</td>
<td>1</td>
<td>14/20 (70%)</td>
</tr>
<tr>
<td>Kick Up Your Heels</td>
<td>1</td>
<td>16/22 (73%)</td>
</tr>
<tr>
<td>Rainbow Showers</td>
<td>2</td>
<td>14/19 (74%)</td>
</tr>
<tr>
<td>Crystal Kingdom</td>
<td>2</td>
<td>13/16 (81%)</td>
</tr>
<tr>
<td>Hidden Wonders</td>
<td>3</td>
<td>14/18 (78%)</td>
</tr>
<tr>
<td>Golden Secrets</td>
<td>3</td>
<td>16/21 (76%)</td>
</tr>
<tr>
<td>Sea Treasures</td>
<td>4</td>
<td>22/27 (82%)</td>
</tr>
<tr>
<td>Sky Climbers</td>
<td>5</td>
<td>26/26 (100%)</td>
</tr>
<tr>
<td>Star Flight</td>
<td>6</td>
<td>27/27 (100%)</td>
</tr>
<tr>
<td>Sun Spray</td>
<td>7</td>
<td>25/25 (100%)</td>
</tr>
<tr>
<td>Moon Canyon</td>
<td>8</td>
<td>30/30 (100%)</td>
</tr>
</tbody>
</table>

Discussion

Narrative stories accounted for 38 percent of the entries in the Houghton Mifflin series and 36 percent in the Scott, Foresman series. These data reveal that various rhetorical patterns need to be learned so that students can effectively comprehend the entries in basal readers. Publishers should be praised for providing such variety. Researchers and teachers must remember to consider rhetorical patterns in addition to narrative structures.

Tables 3 and 4 reveal some variance across grade levels in the percentage of narratives which satisfied the story grammar. In general, the percentage increases as grade level increases. Future investigations might be conducted to determine if this is caused by restrictions placed upon authors due to vocabulary, sentence structure, content, length, and/or other variables.

Ninety-one percent of the narratives in the Houghton Mifflin series satisfied the requirements of the story grammar, while 87 percent of the narratives in the Scott, Foresman series satisfied the requirements. These figures
are impressive. When a story failed to satisfy the grammar, it was usually due to one of two reasons: the inclusion of only two events, or the failure of the second event to cause the third event. Simple descriptive passages and passages which enumerated a series of events, like the activities in a child's day, did not qualify as well constructed narrative stories. Yet, it should be noted that all passages, except one, were judged to be clear and comprehensible, even when they did not satisfy the grammar. Surprisingly, the only poorly written passage appeared in both series.

In conclusion, it appears that teachers who use the Houghton Mifflin and Scott, Foresman readers are primarily exposing their students to narrative stories with a consistent, conventional structure that can serve as an appropriate model.

REFERENCES


Motivating children to read is much easier when they read books of interest to them. Studies of children's reading interests have identified several preferences.

Intermediate-grade children's reading interests are sex dependent. Boys seem to prefer history, travel, science, fantasy, and sports books. Girls like stories about animals, family, poetry, romance, mystery, and biography. Both boys and girls tend to enjoy humor and adventure (Summers and Lukasevich, 1983; Mendoza, 1983; Dowan, 1971). In addition, Feeley (1972) found that boys like sports and informational content, while girls like fantasy and content related to their own hobbies.

Because of the boys' interests in sports stories and the girls' interests in their own recreational activities (which may include sports), there is a definite need to provide students with an abundance of children's literature with a sports theme. There is also a variety of sports oriented language arts activities that can be utilized.

Vocabulary Enrichment

Every sport seems to have its own language. Baseball has bunts, walks, outs, innings, and sacrifices. Football has downs, blocks, interference, linebackers, and goal posts. Helping students see the unique language of each sport is a fun way to study vocabulary. Students could match vocabulary words to the corresponding sport. For instance, "ERA" would match with baseball, "traveling" with basketball, and so on. Students might also try to pantomime the various sports vocabulary terms and have their classmates guess the appropriate word.
Students could also play "Sports Bingo". Each column could contain sports terms and students would have to cross out terms depending upon which column and sport were called. For instance, if the leader called out "P - football," the players would cross out "quarter" and "reverse" in Figure 1.

![Figure 1: Sports Bingo](image)

A semantic feature analysis, as developed by Johnson and Pearson (1978) also lends itself well to a study of sports terminology. This analysis involves examining properties of a given category—in this case, sports. A semantic feature analysis for sports might look like Figure 2.
Students are asked to complete the grid with words associated with each property of the particular sport. Here word meanings are evaluated in terms of the whole category. Some words may appear in two places, but the meanings would not necessarily be identical.

Some sports phrases have double meanings. For instance, "sacking the quarterback" can mean two different things. "A hole in one" can also be interpreted differently. Figure 3 shows the literal way to interpret these phrases. Students could draw their own literal interpretations of other common sports phrases. A good source of examples of baseball figures of speech is Play Ball, Amelia Bedelia by Peggy Parish. This book offers a variety of examples in this area.

Figure 3 - Thanks to Jim Kalisch for his artwork.

Another sports vocabulary development is a take-off on Tom Swifties. A Tom Swifty is an allusion that creates an amusing play on words. "'I'll have the meat,' he said rarely" is an example of a Tom Swifty. Sports Swifties can be written in a similar manner. "'I love gymnastics,' she said flippantly" is one example. "'Why don't you like football?' Tom asked defensively" is another. Students could come up with their own Sports Swifties while discussing double meanings.
Reading, Writing, Listening, and Speaking

There is a variety of activities that can be implemented using pictures or voices of famous athletes. The teacher or the students could tape record various famous sports voices and others could guess the identities. Very often a famous voice can be determined solely on the content of the verbalizations. Related discussions on voice qualities, paralanguage, and contexts for listening comprehension could follow. Tape recording the sounds of the sports themselves (i.e., a bat hitting a baseball, a racket hitting a tennis ball, a football being kicked, etc.) would also provide practice in auditory discrimination.

Pictures of sports figures are also useful. A "Who's Who in Sports" bulletin board or a "Mystery Sports Figure of the Week" might be displayed. Students would need to rely on their research skills to determine the identities of these people in some cases. Using groups of pictures, students might write descriptions of various athletes or even use them as characters in their own stories or poems. Fan letters could also be written.

Children's Literature With Sports Themes - Picture Books

Many books with sports themes are available. Some simple follow-up ideas would be fun to try with young children.

The book Miss Nelson Has A Field Day by Harry Allard (1985) is a hilarious story about the Smedley Tornadoes—the school's losing football team. Coach Viola Swamp saves the day when she begins to whip the team into shape and really "give them the business." Students could make puppets of the main characters and act out the story. They could also list the attributes of a good coach, as an additional exercise.

Max by Rachel Isadora (1976) is a book about a boy who visits his sister's ballet class and finds it to be a natural warm-up for his baseball games. After reading this book, students might want to design a training schedule for Max. How long should he do ballet? How much batting practice is necessary? What about the types of foods he should eat? These questions and more can be addressed through careful planning of Max's training program.
Hooray for Snail by John Stadler (1984) is the story of a snail who hits the ball out of the ballpark, but must hurry to get home before the ball does. Students could brainstorm for ideas on how Snail could get to home base faster (e.g., buy new tennis shoes, call a cab, etc.).

In Jenny and the Tennis Nut by Janet Schulman (1978), Jenny likes gymnastics but her dad tries to get her to like tennis as much as he does. This book would be useful in a unit on individualism. Students might make "Me" posters by creating a collage of magazine pictures that describe their interests. Or students might try writing "Bio Poems" about themselves in the following form:

First name
3 adjectives describing you
"Who likes" 3 things
"Who fears" 3 things
Last name

For example: Johnny
Funny, happy, skinny
Who likes cookies, books, and dogs
Who fears spiders, the dentist, and Aunt Sally Jones

BOOKS FOR OLDER STUDENTS

Jeffrey's Ghost and the Leftover Baseball Team by David Adler (1984) tells of the adventures Jeffrey has with a ghost on his baseball team. Students might suppose the ghost can't talk and write notes or journal entries between the ghost and Jeffrey.

Benjy the Football Hero by Jean Van Leeuwen (1985) is the story of a young boy who becomes a hero in a big football game. Students might be asked to write about the events occurring in the game as a sports reporter would for a newspaper.

Running With Rachel by Frank and Jan Asch (1979) is a nonfiction account of a young girl who runs for fun and exercise. Students might list the advantages and disadvantages of such a sport (i.e., advantages—no special equipment needed, lots of fresh air; disadvantages—risk of knee injuries, might be chased by a dog).

Nathan Aaseng's Basketball, You Are the Coach (1983) is a nonfiction book that allows the reader to decide what play to call in a given situation. Certainly strategy
planning and critical reading are necessary here. Students might make diagrams charting various defenses and offenses for example.

**Summary**

Capitalizing on students' interests is an important component in helping children develop recreational reading habits and encouraging language usage. Activities that highlight diverse vocabulary terms, encourage playing with language, and develop listening and writing skills can be devised utilizing the topic of sports. Various sports books are available for children and should be used to maximize reading enjoyment and involvement.

**REFERENCES**


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