

## DOCUMENT RESUME

ED 461 853

CS 217 801

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TITLE Academic and Vocational Teachers Can Improve the Reading Achievement of Male Career-Bound Students. High Schools That Work Research Brief.  
INSTITUTION Southern Regional Education Board, Atlanta, GA.  
PUB DATE 2000-00-00  
NOTE 16p.  
AVAILABLE FROM Southern Regional Education Board, 592 10th St. N.W., Atlanta, GA 30318 (\$2 plus \$2.50 handling fee). Tel: 404-875-9211; Web site: <http://www.sreb.org/programs/hstw/publications/pubindex.asp>.  
PUB TYPE Guides - Non-Classroom (055) -- Reports - Evaluative (142)  
EDRS PRICE MF01/PC01 Plus Postage.  
DESCRIPTORS Content Area Reading; High Schools; \*Males; Middle Schools; \*Reading Achievement; \*Reading Skills; \*Reading Strategies; Student Needs; \*Teacher Role  
IDENTIFIERS High Schools That Work; Instructional Strategy Usage; Research Results

## ABSTRACT

The disparity between male and female career-bound students' abilities to read, comprehend, and use written information is a problem for high schools and their feeder middle grades. A primary reason for the difference is that teachers and administrators expect too little of male students. Educators need to recognize the importance of communication in the workplace and further study and take steps to raise all students' reading skills. This research brief seeks to answer three basic questions: (1) How well do male career-bound students at "High Schools That Work" (HSTW) read? (2) Which school and classroom experiences are associated with improving the reading achievement of male students? and (3) How can middle grades teachers and high school teachers improve students' reading skills and academic and technical achievement? The brief first presents the 1998 HSTW data on male students' reading achievement. It then outlines some factors associated with higher reading achievement and enumerates some strategies for improving students' reading achievement. The brief states that all teachers can use the 3-part PAR (Preparation, Assistance, and Reflection) lesson framework to engage students in reading. It also provides an example of using PAR to increase reading skills in a career/technical course and describes several reading-to-learn instructional strategies. The brief advocates providing staff development to improve reading instruction in content areas. (NKA)



# Research Brief

## SREB

## Academic and Vocational Teachers Can Improve the Reading Achievement of Male Career-bound Students

by Mark Forget and Gene Bottoms

ED 461 853

The disparity between male and female career-bound students' abilities to read, comprehend and use written information is a problem for high schools and their feeder middle grades. A primary reason for the difference is that teachers and administrators expect too little of male students. Educators need to recognize the importance of communication in the workplace and further study and take steps to raise all students' reading skills.

This report seeks to answer three basic questions: 1) How well do male career-bound students at *High Schools That Work* sites read? 2) Which school and classroom experiences are associated with improving the reading achievement of male students? 3) How can middle grades teachers and high school teachers improve students' reading skills and academic and technical achievement?

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### Male students' reading achievement

The 1998 *High Schools That Work* Assessment, which is based on the National Assessment of Educational Progress, contained good news about male students' reading achievement. Minority as well as

majority male students made gains between 1996 and 1998. (See Table 1.) The percentage of males who met the *HSTW* performance goal for reading rose from 35 percent in 1996 to 44 percent in

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Table 1  
Reading Improvement of Career-bound Students at *HSTW* Sites

	1996	1998
All male students	266	272
African-American male students	256	262
Hispanic male students	262	268
White male students	269	274
Female students	278	280
<i>HSTW</i> reading goal	279	279



1998. The average score for male students rose from 266 to 272. (The *HSTW* goal is 279.) All racial and ethnic groups of male students made progress between 1996 and 1998. The average score for male African-American students increased from 256 to 262, the average score for male Hispanic students improved from 262 to 268, and the average score for white male students rose from 269 to 274.

Between 1996 and 1998, the reading scores for both male and female students increased significantly. While females still read significantly better than males, males made greater gains between 1996 and 1998. The percentage of males who scored below NAEP's "basic" level fell from 52 percent to 44 percent, while the percentage of females who scored "below basic" declined from 36 percent to 32 percent.

Sixty-four percent of the 444 *HSTW* sites that participated in the 1996 and 1998 assessments improved their overall reading scores. The factors that contributed to gains in male students' reading performance included enrolling more students in higher-level academic courses; engaging more students in reading, writing and making classroom presentations; and providing extra help.

The bad news from the 1998 assessment is that the average score of 272 for male students did not meet the *HSTW* goal of 279. No racial or ethnic group of male students reached the goal.

There are many reasons for male students' lower scores. One explanation is that male students in vocational programs are less likely to choose programs that require communication skills, such as doing research, writing reports and making oral presentations. Male students were

10 times more likely than female students to enroll in courses such as agriculture, manufacturing, transportation, electronics and construction. (See Table 2.) On the other hand, 65 percent of career-bound girls who participated in the 1998 assessment were enrolled in language-rich concentrations such as business, marketing and computers; and health and human services. Only 28 percent of male students selected these programs. Yet male and female students who chose these programs had average reading scores that exceeded the *HSTW* goal. (See Table 2.)

Male students also struggle in reading because many of them take basic or general English. These courses are oriented toward basic skills, such as memorizing the rules of grammar instead of applying the rules in writing assignments. Male students who enrolled in basic or general English 12 classes had an average score of 267, while male students who took college-preparatory English 12 had an average score of 286.

The reality is that schools are able to get female students to read more outside of class. For example, only 37 percent of male students said they read one hour per week outside of class; 40 percent reported reading 30 minutes or less per week outside of class. By comparison, 48 percent of female students reported reading at least two hours a week outside of class; only 28 percent reported reading 30 minutes or less. Students who met the *HSTW* reading goal in 1998 tended to take academic and career/technical courses with higher expectations for students to read, write and analyze written materials. The 9 percent of male students who took basic English classes had an average score of 254, while the 51 percent who took general English averaged 269. The 28 percent who took college-prep/honors English

**Table 2**  
 Percentage of Male and Female Students by Program Type and  
 Their Average Scores on the 1998 *High Schools That Work* Assessment

	Percentage of all males enrolled	Males' reading scores	Percentage of all females enrolled	Females' reading scores
Agriculture	12.5	267	3.4	282
Business, marketing and computers	25.5	281	47.4	283
Family and consumer sciences	3.3	265	15.9	274
Industrial and manufacturing	9.2	262	0.4	275
Transportation	11.7	262	0.4	273
Home and commercial repair	1.3	260	0	NA
Health and human services	2.4	279	17.3	280
Communications	3.7	273	2.8	284
Electronics	9.2	273	0.7	279
Cosmetology	0.2	262	4.6	265
Construction	7.4	261	0.2	264
Community protection	1.2	270	0.7	278
Drafting and design	7.3	281	1.1	287
Other	5.1	277	4.9	285

classes had an average score of 286, which exceeded the *HSTW* goal. Requiring students to take higher-level English courses that contain many reading and writing assignments results in better reading performance for both male and female career-bound students.

Despite improved scores, 56 percent of male career-bound students at *HSTW* sites scored below the *HSTW* performance

goal for reading of 279. Such young people cannot read for the purpose of learning academic or technical content. If their reading skills do not improve, these youths may find it hard to get and keep good jobs when they finish high school. Of the students who failed to meet the *HSTW* goal, a disproportionate number were minorities. In fact, 50 percent of African-American students failed to score at or above the basic reading level.

### Factors associated with higher reading achievement

Analysis of data from the 1998 *HSTW* Assessment indicates that schools can improve male students' reading skills by:

- getting students to complete higher-level academic courses, including college-preparatory/honors English;
- getting students to learn communication skills, such as reading, writing, discussing and debating;

- increasing the amount of reading done by students in class and out of class;
- requiring students to read and write to complete challenging assignments in academic and career/technical classes;
- increasing the amount and quality of homework; and
- providing staff development and ongoing assistance to help academic and vocational teachers use reading to engage students in learning.

## Strategies for improving students' reading achievement

Many teachers mistakenly believe that high school students know how to read well enough to learn new content and that they are motivated to do so. In fact, most students have not received intensive instruction in reading since elementary school, where most reading takes the form of stories. Many high school students do not know how to deal with classroom materials that contain facts and ideas. At the same time, most teachers in the middle grades and high school see themselves as “content” teachers rather than “reading” teachers.

Students who have not been taught to read in order to learn are like athletes who have not been coached for a big game. Students who cannot read are doomed to fail, to drop out of school, or to “get by” in courses with very low expectations for reading.

- Help students learn how to learn.

Teachers can help middle grades and high school students become independent learners by requiring them to read in mathematics, science, career/technical and other courses. The way to do so is to embed reading strategies into any type of lesson. Teachers can teach and demonstrate how to read, study and think and can guide students in developing their own reading-for-learning skills. The goal

of content-area reading instruction is to transfer the responsibility for learning from teacher to student — and it can happen in a single school year.

- Help students learn to comprehend what they read.

Many high school students do not know how to read for comprehension. Students who cannot make sense of written materials are placed in lower-level classes, but they don't know why. They think they are “just not smart enough” to understand and remember what they read. Unfortunately, teachers and administrators often share this belief. What these students really need is a way to process written words. To become independent learners, students must read with purpose, monitor their understandings, recognize their weaknesses, and know how to increase comprehension. Most teachers in the middle grades and high school do not teach these skills, and many students lack parents or others who can help them make sense of difficult materials. Many students simply “throw in the towel” in reading.

Reading for understanding is important in learning. It involves planning what to think about before reading, making adjustments during reading, and constantly evaluating the effort to derive meaning

from text. The best way to teach reading for comprehension is to develop structured reading assignments in the classroom. Teachers should use a framework that allows students to learn content while using good reading practices.

- Teach in ways that develop students' learning skills.

To reason effectively and to solve problems, students need to take responsibility for their own thinking and learning. Proper use of language can help students focus mentally, put information into perspective, reflect on meanings, plan ahead, and follow through on assignments — skills that teachers say many students lack. Students' lack of language skills can be attributed to three causes:

- Lack of communication in the early years — Young children do not interact enough with parents, child-care providers and others.
- Too much television — Too many students watch too much television, a one-way medium that replaces conversation. Students' achievement scores reflect this fact.
- Lack of practice in classrooms — Teachers fail to involve students adequately in using oral and written communication to complete classroom assignments and solve real problems.

While there is little schools can do to change the first two causes, they can improve teaching strategies to emphasize reading.

Students who use language skills in the classroom can improve their abilities to reason, reflect and respond to the world around them. Through planned conversa-

tions and written assignments, they can compare their thoughts with those of others. Interactive, language-rich classrooms — unlike traditional classrooms and television — involve students in obtaining their own information rather than delivering information to them.

Teachers should “model” effective reading skills and help students strengthen their language and thought processes. Unfortunately, most teachers do not do so. Faced with the need to “cover” the material regardless of whether students “get it,” many teachers choose methods such as lectures, worksheets and end-of-chapter questions. Even teachers who encourage classroom discussions often focus on themselves and their own knowledge instead of asking students to read content materials, discover new ideas and describe them in their own words.

- Teach challenging content to all students.

Students in low-level courses may be overdosed on drill-and-skill work and may be deprived of opportunities to read, write and speak. They interact very little in the classroom. As a result, students who need the most practice have few opportunities to become active, independent learners. These students — who were placed in low-level classes because of poor reading skills — fall further and further behind. As a result, students who fail to learn may be labeled “lazy” and “unmotivated.” Instead of asking students to read in the classroom and to interpret and discuss what they have read, many teachers assign reading as homework or ask students to read in order to answer questions at the end of a chapter or to complete a worksheet. It is no wonder that so many students see reading as a passive, often-boring learning experience that fails to

connect topics to one another, to what was learned earlier or to reality.

Research has shown that an active approach works best in getting students to understand written materials. Teachers can assign more homework and ask students to read, write, speak, listen and think about the content being studied. These approaches should be used in all courses — including academic courses, such as mathematics and science, and career/technical courses.

- ☒ Increase students' understanding of subject matter while improving their reading skills.

All teachers need to know that they can teach subject-matter content while improving students' reading and thinking skills. Teachers can ensure success by:

- ☉ using reading to engage students in higher-level thinking;
- ☉ “coaching” student learners;
- asking students who have had prior experiences related to the materials to help each other think, solve problems and present interpretations; and
- ☉ getting students to work individually and in groups to construct meaning from textbooks and other materials.

Students have too little access to classrooms where active learning takes place. Of the male students who participated in the 1998 *HSTW* Assessment, only 53 percent said their courses were challenging and exciting. In fact, 46 percent of males said they did all of their homework in class. Only 41 percent of males read technical manuals in class at least weekly, and only 32 percent made more than two pre-

sentations in vocational classes. Thirty-three percent of male students never had made presentations in science classes, and 29 percent never had read assigned books or articles on science. The assessment revealed that too few male students take courses that engage them in reading for learning. It also showed that students who take challenging courses, do large amounts of homework, read technical manuals and make classroom presentations achieve at significantly higher levels.

Teachers can make reading the “heart” of any lesson. Three steps for teaching reading and a subject at the same time are:

- ☉ Ask students to consider what they know about a topic before reading the textbook (or other printed materials) and help them organize their prior knowledge in order to seek new information. Teachers can get students to preview the text, predict what it will contain, participate in brainstorming activities, write about the topic being studied, and generate questions.
- ☉ Demonstrate the strategies for processing new knowledge from written materials; get students to discuss, debate and organize the information; and then guide them as they practice using three-level study guides, paraphrasing new knowledge in speech or in writing, and interacting with the text by making notes on the materials.
- ☉ Ask students to extend the new knowledge by writing, participating in small-group discussions, making presentations, debating the information, taking notes, and/or applying the knowledge in career/technical courses and the

workplace. One way to extend knowledge is through cubing — a writing activity that helps students think about a topic on various levels.

Even though many teachers are not avid readers, virtually all of them have used reading in their own fields and readily can demonstrate the three steps for teaching reading and a subject simultaneously.

- ☐ Use reading to develop higher-order thinking skills.

Higher-order thinking skills enable someone to make decisions, solve problems, visualize, reason, analyze, interpret and learn. Critical thinkers are independent learners who are flexible, determined, solution-oriented and quality-conscious. Strategies for developing students' higher-order thinking skills are based on research into how people learn and solve problems. Teachers cannot simply tell students how to think more productively. They need to plan activities that will get students to learn by interacting with their physical and social environments. The learning process involves moving from using basic skills and pure facts to connecting new information and prior knowledge; from relying on a single source to recognizing multiple sources of knowledge; and from solving problems like a novice to finding solutions like an expert.

Teachers should do more than provide information; they should help students learn to seek out information on their own. They should encourage students to use prior knowledge; demonstrate ways to process information and to solve problems; guide students as they practice these skills; and help students analyze, synthesize and evaluate what they have learned.

- ☐ Use cooperative learning.

Cooperative-learning groups can help all students read better. In cooperative learning, students work in small groups on a challenging assignment for which they receive grades as individuals and as groups. In a classroom where the teacher uses reading-to-learn strategies, groups may be assigned to interpret something they have read. In this situation, the teacher encourages students to pursue knowledge rather than feeding it to them.

Students benefit from others' insights as they help each other understand the text. Paraphrasing and arguing about a subject lead to deeper understanding and greater retention. Thus, when a teacher properly facilitates a cooperative-learning group, all students benefit. Teachers need to keep three things in mind:

- ⊙ Get each student to prepare a written interpretation of the materials before discussing them in a small group. By interpreting the materials in writing ahead of time, each student has a personal stake in the group discussion. This approach prevents some students from doing the work while others loaf. *The key word is "commitment."* Each student contributes something, even before the discussion begins.
- ⊙ Encourage the small groups to discuss the text before agreeing on what it means.

In an effort to arrive at a consensus, all students — regardless of their achievement levels — have something to say. Students who read poorly may be good thinkers who can share their ideas and observations with the group. If students attempt to reach a consensus rather than a majority, they

are more apt to participate in a discussion — particularly if the teacher has demonstrated the process and has encouraged all students to take part. Small groups enable students to express their opinions in an environment that is less risky and less stifling than a whole-class discussion. *The key word is “consensus.”*

- ④ Ask all students to participate in a discussion of the materials in an effort to reach a classwide consensus on what the content means. *The key word is “mediation.”* The teacher acts as an impartial “judge” as students “argue” with each other and use the text as a reference to

support their small-group interpretations.

Cooperative learning helps students become active learners by using interpretive reading to make sense of written materials. When teachers help students learn rather than “feed” them information, students tend to learn more about a subject than when they listen passively to a lecture and worry about “being right.” Instead, students help each other “solve a problem” by constructing meaning from written materials.

In cooperative learning, each student — as well as the group — should be held accountable. Each student must be able to pass a test and write about — or verbally defend — what he or she has learned.

## All teachers can use the PAR lesson framework<sup>1</sup> to engage students in reading

PAR stands for “Preparation, Assistance and Reflection.” It is a research-based framework for teaching reading skills and content at the same time. The framework includes actions that teachers can take before, during and after a reading assignment to help students:

- learn the subject matter;
- practice strategic reading in class;
- work in collaborative, problem-solving teams to construct meaning from text; and
- become active learners by having a purpose for reading and working with others to interpret the content.

The lesson framework has three parts:

- ④ *Prepare students to read* purposefully. The preparation may encourage students to use prior knowledge in predicting what the text will say or to ask interpretive questions before they read. The teacher may help students “brainstorm” ideas or may provide background information through a lecture. These activities help students recall what they already know and avoid any misconceptions about the text.
- ④ *Assist students* with their reading. Create an environment in which students can acquire new informa-

<sup>1</sup>Richardson, Judy S. and Morgan, Raymond F. *Reading to Learn in the Content Areas*. (4th ed.) Belmont, Calif.: ITP-Wadsworth Publishers, 2000.

tion to prove a point, to answer a question or to confirm a prediction. Based on the questions or predictions they devised during the preparation phase, students immerse themselves in reading and make sense of the materials.

- ⊙ Ask students to *reflect* on what they have read by discussing, debating and writing about the topic. Students help each other practice higher-order thinking skills when they analyze the text, discuss what it means and apply the knowledge to new or different circumstances.

Most tests that measure whether students meet standards are based on information found in textbooks. However, the tests may ask students to interpret infor-

mation, and many students are unprepared to do so. Students who have received help from teachers and other students in classrooms where reading is emphasized are better equipped to do the types of reading and thinking that tests measure.

PAR's third component, reflection, teaches students to extend their learning beyond the text by discussing the information and applying the knowledge in their career/technical courses.

The PAR framework was designed to teach students to read, but it also can be used to help students learn from watching videotapes or listening to lectures or other presentations. However, teachers should focus on reading if they want to improve students' reading achievement scores.

#### The PAR Lesson Framework for Teaching Reading in All Content Areas

The PAR framework can be used by any teacher in the middle grades or high school to help students improve their reading skills. It also can help students gain the knowledge they need to meet states' and local districts' increasingly challenging standards.

P	A	R
<u>Preparation</u>	<u>Assistance</u>	<u>Reflection</u>
<ul style="list-style-type: none"> <li>⊙ Overcoming problems in reading the text</li> <li>⊙ Determining background knowledge</li> <li>⊙ Building background knowledge</li> <li>⊙ Establishing a purpose for reading</li> </ul>	<ul style="list-style-type: none"> <li>⊙ Maintaining the purpose for reading</li> <li>⊙ Reading to acquire new knowledge</li> <li>⊙ Building comprehension</li> </ul>	<ul style="list-style-type: none"> <li>⊙ Evaluating new learning</li> <li>⊙ Demonstrating learning</li> <li>⊙ Extending the reading experience by practicing critical thinking</li> <li>⊙ Retaining what has been learned</li> </ul>

## Using PAR to Increase Reading Skills in a Career/Technical Course

This example involves students who are taking a materials technology course and are preparing to read about the processes that workers use in “bonding” materials. The teacher wants the students to understand two main categories of bonding — cohesive and adhesive — and several ways to use each one. Students are seated in groups in the class.

The teacher begins by discussing the importance of “reading for learning” in the workplace and by describing the strategies he will teach to make reading easier and more interesting. He explains how the ability to read technical manuals has helped him in the business he operates outside of school hours.

The teacher explains that when he reads a piece of technical material, he reviews it quickly and “predicts” what it will contain. He asks the students to try this method with materials they plan to read in class. After students preview six pages of assigned reading, each of them receives a piece of paper called a “prediction guide.” (See page 11.) The guide contains statements about the pages the students have previewed. Using prior knowledge, the students place check marks beside the statements that they think will be true. It does not matter whether the predictions are valid, and students should not worry about whether they have made the right choices. Some statements on the guide will be correct, some will be incorrect, and some will be debatable. Some students will say a statement is true and will offer evidence to prove it, while others may show evidence to disprove it. The important thing is that the predictions help students remain interested in what they are reading.

After the students mark their statements, they discuss their selections with others in the group to compare their reasons and to build

their background knowledge before the actual reading begins. The teacher moves from group to group to monitor discussions, many of which become quite animated as students share their opinions.

Following the discussions, the students read quietly and note the pages, the columns and the paragraphs that they will use in proving whether statements on the prediction guide are true or false. Once again, the teacher moves throughout the room to monitor the work and to answer questions.

After about 20 minutes, students finish reading and begin to discuss the statements with their groups. The teacher asks the students to reach a small-group consensus and reminds them that a consensus is not the same as a majority. Every student should participate in the discussion. As the teacher moves throughout the room, he reminds students to “act like attorneys” in presenting evidence from the text to support their claims. This time, students “argue” over statements such as “Cohesive bonding is stronger than adhesive bonding.”

The teacher finds the first group that reaches a consensus and writes down the statements the group wants to verify. He transfers the statements to an overhead transparency that contains a blank version of the prediction guide.

The final phase of the discussion occurs when the teacher shows the statements to the students and asks them to reach a classwide consensus. Now the students sort out differences that emerged in the small groups. This process takes a few minutes, but students relish the opportunity to present the information they have gleaned from reading the materials.

When the class reaches a consensus, the students vote on whether the prediction guide heightened their interest in reading the assigned materials.

Students say: "We get to *think* in this class. It's more interesting." They learn techniques for setting their own

purposes for reading, finding information in the text and reflecting on the new knowledge.

By developing their own understandings, students are more likely to retain the information and to apply it in other courses and situations.

### Prediction Guide: Using Bonding to Assemble Materials \_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

**Instructions:** Before reading pages 131-36 in your textbook, place a check mark (✓) in the space to the left of each statement with which you agree. During or after the reading, cross out the statement(s) you want to change and check any new ones you have found to be true. Make sure you can refer back to the section(s) of text that will provide evidence for or against each statement.

- 1. Both physics and chemistry are important in the process of bonding materials.
- 2. Cohesive bonds are made by sharing electrons, but adhesive bonds are not made that way.
- 3. Cohesive bonding is stronger than adhesive bonding.
- 4. Brazing and soldering are examples of adhesive bonding.
- 5. Heat and/or pressure often are used to create cohesive bonds.
- 6. Fusion bonding — an example of cohesive bonding — can be used on ceramics, plastic and metal.
- 7. When you weld metal, you are practicing fusion bonding.
- 8. Solvent bonding is an example of adhesive bonding.
- 9. Flow bonding of metals is similar to fusion bonding, because heat is used to melt metal in creating a bond. However, flow bonding requires lower temperatures.
- 10. Pressure bonding uses pressure instead of heat to bond the materials.
- 11. Several different sources of heat can be used in pressure bonding.

## Reading-to-learn instructional strategies

**Paired reading:** In this shared-learning experience, students verbally paraphrase materials they read in class. Two students alternate the roles of “teller” and “listener” as they read and derive meaning from a written piece. Both partners read silently, signaling each other when they have finished. With the book closed,\* the teller paraphrases the piece of text. The listener does not comment until the teller has exhausted his or her knowledge. Then the listener adds anything that the teller omitted. When the listener finishes, both partners quickly scan the text for details and ideas they missed. The teacher may ask the students to write something or to take notes as a follow-up to paired reading.

\* Before closing a mathematics text, the teller copies the problem but not the solution. He or she then attempts to solve the problem for the listener.

Larson, C., and D. Danserau (1986). “Cooperative Learning in Dyads.” *Journal of Reading*, 29, 516-20.

**A three-level study guide:** This strategy helps students connect and integrate three levels of thinking: literal, inferential and applied. A guide is a sheet of paper containing statements that the teacher has divided into three categories based on the level of thinking required to interpret the text. Students are asked to prove or disprove the statements.

- Literal-level statements are either true or false and are easy to locate by reading the text carefully.
- Inferential-level statements are used in processing larger chunks of text for overall meaning. Statements at this level are not stated directly in the text but can be defended through interpretation of the text.
- Applied-level statements are related to how the text can be used in the real world. To defend such statements, students must understand how to apply learned concepts in different circumstances.

Three-level study guides also allow students to work together to interpret text. In addition to giving students a deeper understanding of content, this approach lets them practice three levels of thinking skills that they will need in taking standardized tests, which often require more than literal interpretations.

Herber, H. *Teaching Reading in the Content Areas* (2nd ed.). Englewood Cliffs, N.J.: Prentice Hall, 1978.

Cubing: This activity helps students reflect on their understandings of what they have learned. Cubing involves six levels of thinking: description, comparison, association, analysis, application and argument. By using the six sides of a cube, some teachers create a visual “prop” to stimulate students’ thinking. After the teacher demonstrates this activity, students practice reflecting on what they know about a topic. Students who compare their written reflections with those of other students often come away with different perspectives on the text. Teachers can use cubing to evaluate students’ understandings of a concept.

Cowan, G., and E. Cowan *Writing*. New York: Wiley, 1980.

G.I.S.T. (Generating Interaction between Schemata and Text): Students work together to summarize the essential message of the text in a limited number of words. They find the main ideas in what they have read and restate them in a precise, compact paragraph. Students help each other reconstruct the author’s meaning. Some teachers invite competition by letting students vote for the best summary in terms of thoroughness, creativity and accuracy.

Cunningham, J.W. “Generating Interactions Between Schemata and Text.” In J.A. Niles and L.A. Harris (eds.). *New Inquiries in Reading Research and Instruction*. 31st Yearbook of the National Reading Conference, pp. 42-47. Rochester, N.Y.: National Reading Conference, 1982.

A prediction guide: Students prepare a series of statements to predict what the reading materials will contain. They read to find out whether their predictions were correct and then defend their interpretations. Such a guide gets students to think deeply about a topic, to read carefully and to discuss their findings. In using this strategy, teachers reword difficult passages, challenge students to discard misconceptions and allow students to practice reading for a purpose. A prediction guide helps students interact with others in discussing the meaning of text. (See pages 10 and 11 for an example of how to use a prediction guide in a career/technical course.)

Herber, H. *Teaching Reading in the Content Areas* (2nd ed.). Englewood Cliffs, N.J.: Prentice Hall, 1978.

Readance, J.E., T.W. Bean and R.S. Baldwin. *Content Area Reading: An Integrated Approach*. Dubuque, Iowa; Kendall/Hunt, 1981.

Two-column note-taking: Also known as the Cornell System, this strategy is used in many medical schools and law schools. It helps students organize and retain information. A student draws a vertical line to divide a blank sheet of paper into two columns. The left column takes about one-third of the paper, and the right column takes the remaining two-thirds. Students use the left column to note the main ideas of what they read. They use the right column to list details about each main idea. Students remember more details if they group them under a main idea. In addition, by folding the paper vertically to hide the details, students can practice recalling specific information about an idea.

Pauk, W. *How to Study in College*. Boston: Houghton Mifflin, 1974.

PreP (pre-reading plan): To get students ready to read, teachers use a three-step process to determine what students already know about the materials and to establish a purpose for reading. The three steps are:

- Ask students to write what they know about the topic being studied in class that day.
- Write each student's "prior knowledge" on the chalkboard or an overhead transparency.
- Ask students to organize the information the class has provided. They can do so by creating a visual or by grouping items under certain categories. This information becomes the focus of a search for new information from the day's assignment.

Langer, J. "From Theory to Practice: A Pre-reading Plan." *Journal of Reading*, 25, 152-56.

## Providing staff development to improve reading instruction in content areas

Staff development to prepare teachers in the middle grades and high school to improve students' reading skills should include at least one introductory session that is structured and interactive.

Incorporating reading into content instruction represents a major shift in classroom methods. Teachers who prefer traditional teaching methods, such as lecturing and getting students to complete worksheets, will benefit from practicing and working with their colleagues. When

teachers see how new strategies can improve their own reading and retention, they are more likely to use these strategies with their students.

Teachers who participate in reading-to-learn workshops need follow-up activities to help them implement the strategies. These activities may include peer coaching or some other form of support from an administrator or a reading-to-learn expert.

## Summary

Modern career fields need employees who are capable, independent and thoughtful learners, but many students — especially male students — do not achieve this level in school. The ability to read will continue to be important, even if people read only computer screens. Yet career-bound students — particularly males — do not read much, do not read

well and do not learn to be thoughtful readers.

Teachers in the middle grades and high school do little to improve students' reading skills. Students need to read regularly in content-area classrooms. Teachers can raise student achievement by getting students to read across the curriculum.

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