Research-Based Content Area Reading Instruction

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As students move beyond the primary grades, the focus of their school lives shifts from learning how to read to using reading to learn. From the middle grades on, students are expected to read and to understand increasingly more difficult materials in an array of content areas. Unfortunately, many students are unable to meet this expectation. For them, reading to learn from content area materials can be a struggle.

A number of text- and student-related factors can make content area reading difficult for some students. For example, students may have little experience reading expository writing, the kind of text structure found typically in textbooks and other content area materials. Further, they may become frustrated and confused by the content-specific vocabulary and concepts that characterize these materials. Adding to their difficulties, students may have inadequately developed basic reading skills, such as word identification and decoding skills, and so may not be able to read with fluency. Finally, many students may lack—or be unable to use efficiently—the comprehension strategies necessary for getting meaning from content area materials.

Although reading instruction alone can teach students many of the skills and strategies they require for reading content area materials successfully, students also must have ample opportunities to apply these skills and strategies in "real" reading situations—that is, as they read in the content areas. Thus, all teachers across the curriculum and across grade levels can play a role in teaching students to use reading skills and strategies to learn the content of the subjects that they teach and to become independent readers and learners.

Specifically, teachers can provide students with instruction that:

- **familiarizes them with the structure of expository text;**
- **promotes content area vocabulary development;**
- **promotes word identification skills;**
- **builds reading fluency; and**
- **emphasizes and directly teaches how, why, when, and where to use a repertoire of comprehension strategies.**

The purpose of this booklet is to provide teachers with research-based and classroom-tested information about each of these aspects of content area reading instruction, along with specific teaching suggestions that can be used with students.

Expository Text[1]

The ability to identify and take advantage of text structure—the way ideas in a text are interrelated so as to convey meaning to readers—can contribute to students' comprehension. The two major text structures, narrative and expository, place different demands on readers' comprehension.

Narrative text structure focuses on story grammar, which includes characters, settings, themes, conflicts, plots, and conflict resolutions. The structure of expository text varies greatly. Indeed, it is more accurate to talk about expository text structures. Some common text structures used in expository materials are:

problem-solution—the text presents a problem, perhaps explains why it is a problem, and then offers possible solutions, usually settling on one solution as most appropriate.

description—the text provides specific details about a topic, person, event, or idea.

cause-and-effect relationships—the text links events (effects) with their causes. Such text usually includes key words and phrases, called causal indicators to signal a cause-and-effect relationship structure. Some common causal indicators are *because, for, since, therefore, so, consequently, due to,* and *as a result.*

enumeration or categorizing—the text is organized by means of lists or by collecting together like items. Often authors familiarize readers with new information by listing or categorizing it with more familiar information.

sequencing—the text presents information in terms of a time or order progression, such as the actions that led to an important historical event or the steps in a scientific process. This kind of structure most often includes time or order signal words such as *first, second, last, earlier, later, now, then, next, after, during,* and *finally.*

comparison—the text points out differences and similarities between two or more topics, including ideas, people, locations, or events. This text structure can be signaled by key words and phrases such as *like, as, still, although, yet, but, however,* and *on the other hand.*

In addition, expository materials generally use special organizational features such as text headings and subheadings. Some materials may include chapter and section previews and summaries, and most contain tables of content, indices, and glossaries. They also may use extensive graphics, such as tables, charts, diagrams, figures, photographs, and illustrations, and each of these may be accompanied by explanatory captions.

Students tend to be more familiar with narrative text structure than with expository structures. Narrative is not only the form of text that they know from their early experiences with story books, it is also the kind of text that is found most frequently in basal reader selections.

[1] *For additional information about text structure and instruction, see* Comprehension Instruction, *Texas Reading Initiative, Texas Education Agency, 2000.*

In typical content area classrooms, however, teachers use textbooks as the basis for their instruction. And textbooks most often use expository structures. Indeed, authors may use some or even all of the text structures in any given chapter or section of a textbook.

What We Know About Effective Instruction for Reading Expository Text

Without an understanding of text structure, students often have difficulty getting meaning from their content area reading materials. In fact, research has established a strong relationship between students' understanding of text structure and reading comprehension. Most students benefit from explicit instruction that helps them to understand and use the text structures as they encounter them in their reading materials.

Because textbooks are the materials used most often by content area teachers as the basis for their instruction, selecting the textbooks in which students will do the greatest amount of reading also is a major consideration for effective instruction.

Suggestions for Teaching Students About Expository Text

Instructional practices for teaching students about expository text include explicitly helping them:

- **to identify and use the various structures found in expository text, and to incorporate the various structures into their own writing;**
- **to identify and use special text features such as headings and subheadings, previews, summaries, photographs and illustrations, and the captions that accompany them;**
- **to recognize and make use of words that signal a particular type of text structure, including causal indicators and words that indicate time or order sequences or comparisons;**
- **to use information in tables of content, indices, and glossaries; and**
- **to interpret text graphics such as charts, tables, and figures, and to construct graphics on their own.**

Suggestions for Use of Textbooks

Textbooks should be used based on their coherence, or logical flow of ideas, and on their appropriateness for the students who will use them. To best support instruction, it is necessary for textbooks to:

- **contain prereading activities that help students link their existing knowledge to the topics to be studied;**
- **make evident to students the relationships between concepts and main ideas and supporting details;**
- **use accurate and clear graphics, such as illustrations, photographs, charts, tables, and diagrams to help students conceptualize the structure of the text;**
- **provide vocabulary activities to help students develop deeper understandings of the meanings of concepts and to contribute to generalization of learning across topics;**

- **provide ample and relevant practice activities to reinforce learning and to allow students opportunities to apply their knowledge of key concepts; and**
- **provide study guides and reference tools to assist students in comprehending and remembering content information.**

Content Area Vocabulary Development[2]

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Each content area has its own language or vocabulary. Content area reading materials present students both with new and often difficult words, as well as with familiar words that may be used in new ways. If a student does not know the meanings of a sufficient proportion of the words in these reading materials, he or she may become frustrated and skip important words, which can make comprehension impossible.

To comprehend their content area reading materials, students must be able to determine the meanings of general, specialized, and technical vocabulary.

General vocabulary consists of words that each student knows and uses as part of everyday activities. However, even familiar words can pose problems if students are not aware that words can have different meanings, or connotations, that are determined by the context in which they appear. Specialized general vocabulary consists of words that have specific meanings for content area subjects. It is context that determines the meanings of such words. For example, the familiar word *brush* will have different meanings in art and geography texts; the word *ruler* will mean different things in math and social studies texts.

Technical vocabulary includes words that relate specifically to each content area or topic. For example, the word potentate is most likely to appear in social studies texts, *concerto* in music texts, and *photosynthesis* in science texts. Students must learn the definitions of these words to understand content area reading materials and to learn the language of a discipline.

What We Know About Effective Content Area Vocabulary Instruction

Because vocabulary knowledge and reading comprehension are so highly related, effective content area vocabulary instruction must provide students both with explicit instruction in specific content-related words and concepts and with strategies that help them to learn words independently.

[2] *For additional information about vocabulary instruction, see* Vocabulary Development, *Texas Reading Initiative, Texas Education Agency, 2000.*

As part of instruction, teachers model how to use context clues to determine the meanings of new words or concepts. They explicitly teach the meanings of key words, such as technical vocabulary, prior to introducing a topic or a selection in which the words appear. To help students link the new words to words they know and to their background knowledge, teachers also may use activities in which they semantically group new vocabulary words with familiar words that have similar meanings.

After introducing a new word, teachers provide students with multiple exposures to the word across contexts to help them develop a deeper understanding of its meaning. Finally, they focus instruction on a limited number of new words in each lesson, and provide students with opportunities to discuss and use the new words.

Suggestions for Teaching Students Content Area Words and Concepts

Instructional practices for teaching students specific content-related words and concepts include helping them:

- **to create mental, or visual images associated with a technical vocabulary word so as to facilitate recall of its meaning. This is often referred to as the keyword technique;**
- **to link new vocabulary with background knowledge by having students brainstorm and describe what they already know about the topic being studied;**
- **to focus on the semantic relationships of new and familiar words and concepts through activities such as semantic mapping, semantic feature analysis, and categorization;**
- **to restate dictionary definitions of new words in their own words and to make up sentences using the new words;**
- **to use synonyms, antonyms, and dictionary definitions to understand the meaning of specialized and technical vocabulary;**
- **to analyze the structure of new words (affixes, inflections, compound words, and contractions) to determine their meanings;**
- **to use contextual analysis activities that require students to use semantic and syntactic features of sentences to determine the meaning of new words. Such activities include a cloze procedure, rereading sentences without using the new word, and reading sentences that appear before and after the sentence with the new word;**
- **to use a combination of strategies, such as dictionary definitions and contextual analysis (each one used alone has not proven to be effective instruction);**
- **to maintain personal content-related word lists or word banks; and**
- **to work cooperatively to figure out meanings of new words through contextual analysis.**

Word Identification[3]

In the primary grades, word identification instruction focuses on helping children to understand the alphabetic principle and to rapidly and automatically relate the letters and spelling patterns of written words to their corresponding speech sounds. Once beginning readers are able to do this, they begin to focus less attention on word reading, or decoding, and more attention on getting meaning from what they read.

Beyond the primary grades, word identification instruction focuses on teaching students skills that they can apply to read difficult or unfamiliar multisyllabic words—the kind of words often found in content area reading materials and textbooks.

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Useful word identification skills to teach older students include contextual analysis and structural analysis. Contextual analysis helps students to determine the meaning of an unfamiliar word by drawing clues from the context—the sentence or paragraph—in which the word appears. Context clues include definitions; examples; restatements; graphic illustrations, such as charts, tables, figures, and diagrams; and syntactic and semantic clues found in the sentence structure and words that surround the unfamiliar word.

Structural analysis focuses on word parts—prefixes, root words, suffixes, inflectional endings (for example, *-s, -es, -ed, -ing, -er,* and *-est*), and derivational endings (for example, *-y, -ly, -ial,* and *-ic*). The ability of students to use word parts to interpret new words can contribute greatly to their vocabulary growth.

What We Know About Effective Word Identification Instruction

For older students, word identification skills should be taught as part of vocabulary instruction, as ways to "unlock" and determine the meanings of unfamiliar, difficult, and/or multisyllabic words. Effective word identification instruction involves explicit teaching that promotes the acquisition and mastery of specific word identification skills. Teachers model how to use each skill, focusing instruction on words the students encounter in the text they are reading.

Suggestions For Teaching Students Word Identification Skills

Instructional practices that promote students' word identification skills include helping them:

- **to use context clues in a text to determine the meaning of unfamiliar or difficult words;**
- **to determine word meanings by focusing on the analysis of word parts such as prefixes, root words, suffixes, and inflectional and derivational endings; and**
- **to use word identification skills in combination to figure out difficult or multisyllabic words.**

[3] *For additional information about word identification strategies and instruction, see* Beginning Reading Instruction: Components and Features of a Research-Based Reading Program, *Texas Reading Initiative, Texas Education Agency, 1997, 2000.*

Reading Fluency

Reading fluency is the ability to read words in connected text with accuracy and appropriate rate. Fluency is also demonstrated by appropriate intonation. The ability to read fluently reflects students' comprehension of words and understanding of text structure. Fluent readers possess automatic word identification skills, and are aware of grammatical features of sentence construction. They also have the flexibility to adjust their rate to both the difficulty level and the purpose for reading.

Reading fluency is an important skill throughout schooling, but especially so in the upper elementary and secondary school years, when students are required to read and rapidly comprehend more and more complex materials. Because fluency is closely linked to comprehension, older students who are not fluent readers often benefit from explicit instruction to build reading fluency. Yet upper elementary- and secondary-school content area teachers typically do not provide students with such instruction.

What We Know About Effective Instruction to Build Reading Fluency

The goal of reading fluency instruction for older students is to help them read with greater accuracy and speed, and begin to place more emphasis on comprehending and less on decoding. To accomplish this goal, teachers model fluent reading so that students can "hear" how fluency sounds, then provide opportunities for students to practice reading aloud, with corrective feedback, several times weekly. Teachers often have students reread the same passage two or more times to ensure that they are comprehending what they read.

Teachers establish reading-rate goals and increase these goals as students' fluency improves. They keep records of students' reading development, for example, noting the number of errors students make as they read. Fluent readers should be able to read with no more than 10 errors per 100 words. As a motivational tool, teachers also encourage students to chart their own reading rate scores.

Suggestions for Teaching Students to Read with Fluency:

Reading fluency instruction focuses on providing students with strategies and skills to build accuracy and rate in oral reading. Suggestions for improving fluency instruction include providing opportunities for students:

- **to read aloud under timed conditions;**
- **to preview text before reading aloud, such as listening to text being read;**
- **to practice reading, including taped reading, reading with a partner, and reading to an adult, and to receive corrective feedback;**
- **to use error-correction procedures, such as decoding words they have read incorrectly and using semantic clues within the text; and**
- **to engage in sustained, silent reading, followed by discussion.**

Reading Comprehension Strategies[4]

Reading comprehension is the act of constructing meaning from text. Reading comprehension requires an interaction between the text and the reader's knowledge. Reading comprehension is hindered greatly by students' lack of background knowledge and by their inability to use comprehension strategies to integrate information from the text with their background knowledge.

Background knowledge is made up of readers' experiences both with the world and with text—including their experiences in identifying words and word meanings, their knowledge of print concepts, and their understanding of how text is organized.

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Research has established that students' background knowledge plays a critical role in their understanding of the higher level concepts contained in most content area materials. Students bring to content area reading a range of experiences and knowledge about many topics. The extent of this knowledge and the ease with which they can activate it and apply it to content area topics directly affects how well they understand what they read.

Comprehension strategies are conscious plans that are under the control of a reader, who makes decisions about which strategies to use and when to use them. Skilled readers construct meaning before, during, and after reading by using a set of comprehension strategies to integrate information from a text with their background knowledge.

Researchers have identified and examined an array of comprehension strategies. The following strategies have been shown to be especially helpful and to lend themselves particularly well to instruction:

activating and using background knowledge—calling up pertinent background knowledge and using that knowledge to help understand what is being read.

generating and asking questions—self-questioning throughout the reading of a text.

making inferences—using background knowledge or information from the text to evaluate or draw conclusions during reading.

predicting—using background information to make informed guesses.

summarizing—pulling together, or synthesizing information in a text so as to explain what the text is about.

visualizing—making mental images of a text as a way to understand processes or events that are encountered during reading.

As part of their comprehensive strategy use, skilled readers tend to monitor their understanding continually. They are actively aware of whether they are understanding or remembering what they have read. Specifically, they are able to clarify the purposes for reading, identify the important information in a text, and engage in self-questioning about the text. When skilled readers realize that they do not understand what they are reading, they are able to call upon and apply strategies to "repair" or "fix-up" their lack of understanding.

[4] *For additional information about comprehension strategies and comprehension instruction, see* Comprehension Instruction, *Texas Reading Initiative, Texas Education Agency, 2000.*

Not surprising, because they must devote so much of their attention to decoding, struggling readers have difficulty monitoring their comprehension. These students in particular can benefit from instruction that helps them learn when and how to use different strategies to monitor comprehension and to repair comprehension problems.

What We Know About Effective Comprehension Strategies Instruction

Student development and use of effective reading comprehension strategies is one of the most important goals for content area reading instruction.Therefore, strategy inst instruction should be part of the total school curriculum, and students should be taught to apply strategies in various content area classes.

With teacher guidance, students practice using strategies as they read authentic text, such as trade books or specialized content area supplements, as well as their content area textbooks. Students are asked to demonstrate the application of a strategy and to provide reasons for using it. Teachers use prompting, elaboration, and explanation to foster students' independent use of strategies.

Suggestion for Teaching Students Comprehension Strategy Use

Comprehension strategy instruction focuses on providing students with strategies to use before, during, and after reading so as to build and activate their background knowledge, interpret text structures, use self-monitoring abilities, and review and reflect on what they have read.

Before Reading

Suggestions for teaching comprehension strategy use before reading include providing opportunities for students:

- **to activate their prior knowledge about the content area topic to be studied. Activities might include having students tell what they know about the topic or inviting them to discuss what they want to learn about it;**
- **to participate in activities, such as mapping techniques, that enable students to see relationships among their ideas about the topic;**
- **to participate in activities that introduce analogous material to help students make connections between the topic to be studied and their background knowledge;**
- **to participate in activities that develop the prerequisite background knowledge and vocabulary about content area topics. Activities might include reading materials, videos, computer databases and Web sites, and field trips;**
- **to participate in vocabulary-building activities that teach students the meaning of technical words they will encounter as they read;**
- **to preview and make predictions about the text to be read;**
- **to examine the physical features of the text, such as different kinds of typefaces or headings and subheadings, to make predictions about what they will learn from reading;**
- **to establish goals, or purposes for reading;**
- **to generate questions they would like answered about the topic of the text. Students might use physical features of the text to generate questions. They might, for example turn headings into questions or question themselves about the definitions of boldface or italicized words in the text.**

During Reading

Suggestions for teaching comprehension strategy use during reading include providing opportunities for students:

- **to construct mental images of the content they are reading;**
- **to reflect on and monitor their understanding of text as they read;**
- **to participate in self-questioning activities that require them to clarify and monitor their comprehension as they proceed through text. For example, students might be taught to ask themselves questions such as, "Do I understand what I just read?";**
- **to participate in activities in which they respond to factual and inferential questions as they proceed through the text. To begin, teachers might provide clues about where to find the answers to these questions;**
- **to participate in summarization activities that enable students to identify information pertinent to sections of text. Students can be prompted to ask themselves questions such as, "What is the most important idea about the paragraph I just read? or "What is the gist of the paragraph?";**
- **to keep literature logs and journals, which offer students opportunities to reflect on their reading through prediction, summarization, and interpretation;**
- **to apply organizational frameworks as a way to understand and remember content information;**
- **to complete notesheets and study guides to facilitate their understanding of text and improve their ability to deal with information presented in various expository text structures; and**
- **to make story maps or use other graphic organizers to help them organize information from the text.**

After Reading

Suggestions for teaching comprehension strategy use after reading include providing opportunities for students:

- **to review, paraphrase, summarize, and interpret text;**
- **to participate in discussions of the main ideas of the text by summarizing or by putting information into their own words;**
- **to answer questions that pertain both to literal and inferential comprehension of text;**
- **to participate in small-group discussions using study guides and post-reading questions; and**
- **to present important information from the text through oral reports, visual representations, media shows, or book reviews.**

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COMPLIANCE STATEMENT

TITLE VI, CIVIL RIGHTS ACT OF 1964; THE MODIFIED COURT ORDER, CIVIL ACTION 5281, FEDERAL DISTRICT COURT, EASTERN DISTRICT OF TEXAS, TYLER DIVISION

Reviews of local education agencies pertaining to compliance with Title VI Civil Rights Act of 1964 and with specific requirement of the Modified Court Order, Civil Action No. 5281, Federal District Court, Eastern District of Texas, Tyler Division are conducted periodically by staff representatives of the Texas Education Agency. These reviews cover at least the following policies and practices:

(1) acceptance policies on student transfers from other school districts;
(2) operation of school bus routes or runs on a nonsegregated basis;
(3) nondiscrimination in extracurricular activities and the use of school facilities;
(4) nondiscriminatory practices in the hiring, assigning, promoting, paying, demoting, reassigning, or dismissing of faculty and staff members who work with children;
(5) enrollment and assignment of students without discrimination on the basis of race, color, or national origin;
(6) nondiscriminatory practices relating to the use of a student's first language; and
(7) evidence of published procedures for hearing complaints and grievances.

In additional to conducting reviews, the Texas Education Agency staff representatives check complaints of discrimination made by citizen or citizens residing in a school district where alleged discriminatory practices have occurred or are occurring.

Where a violation of the Court Order in Civil Action No. 5281 that cannot be cleared through negotiation, the sanctions required by the Court Order are applied.

If there is a direct violation of the Court Order in Civil Action No. 5281 that cannot be cleared through negotiation, the sanctions required by the Court Order are applied.

TITLE VII, CIVIL RIGHTS ACT OF 1964 AS AMENDED BY THE EQUAL EMPLOYMENT OPPORTUNITY ACT OF 1972; EXECUTIVE ORDERS 11246 AND 11375; EQUAL PAY ACT OF 1964, TITLE IX, EDUCATION AMENDMENTS; REHABILITATION ACT OF 1973 AS AMENDED; 1974 AMENDMENTS TO THE WAGE-HOUR LAW EXPANDING THE AGE DISCRIMINATION IN EMPLOYMENT ACT OF 1967; VIETNAM ERA VETERANS READJUSTMENT ACT OF 1972 AS AMENDED; IMMIGRATION REFORM AND CONTROL ACT OF 1986; AMERICANS WITH DISABILITIES ACT OF 1990; AND THE CIVIL RIGHTS ACT OF 1991.

The Texas Education Agency shall comply fully with the nondiscrimination provisions of all federal and state laws, rules and regulations aby assuring that no person shall be excluded from consideration for recruitment, selection, appointment, training, promotion, retention, or any other personnel action, or be denied any benefits or participation in any educational programs or activities which it operates on the grounds of race, religion, color, national origin, sex, disability, age, or veteran status (except where age, sex or disability constitutes a bona fide occupational qualification necessary to proper and efficient administration). The Texas Education Agency is an Equal Employment Opportunity / Affirmative Action employer.