



Reading Horizons: A Journal of Literacy and Language Arts

Volume 19
Issue 1 *October 1978*

Article 3

10-1-1978

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Recommended Citation

Robinson, S. L. (1978). Content Area Textbooks--Waste Not ... *Reading Horizons: A Journal of Literacy and Language Arts*, 19 (1). Retrieved from https://scholarworks.wmich.edu/reading_horizons/vol19/iss1/3

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CONTENT AREA TEXTBOOKS— WASTE NOT . . .

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What are the dustiest, least-used books in an elementary classroom? Probably those considered as basic texts for science, social studies, health, and perhaps even math.

Why is this so? To quote many teachers:

"Because the children can't read these books!"

"They're too hard for my students to read!"

"How can I have time to find a lot of other materials to teach social studies (science, math) to many students who are reading below grade level?"

If children do not possess adequate skills to read these textbooks, what should be done to correct the situation? Can teachers make use of content area texts and time normally allotted to content area study to plan appropriate learning situations?

The answer to the latter question is "Yes!" Teachers can use textbooks by and while teaching students the special skills that they need to read content area textbooks. Any effective method of teaching students to read textbooks concerned with a variety of subject matters must propose ideas formulated and presented with a relationship to reading skills but with a base in subject-matter topics. In helping students to read content area textbooks, there are Four Basic Areas of Concern: Word Recognition, Vocabulary, Comprehension, and Study Skills.

Word Recognition

In order to utilize subject-matter textbooks, students must first be able to recognize words presented in science, social studies, mathematics, and literature textbooks. Teaching students to recognize words involves introducing them to a system to sound and identify terms. As part of subject-matter teaching, words could be identified in terms of three different systems: syllables; prefixes, roots, suffixes; or word parts.

1. While dividing words into syllables can become an artificial exercise, it can also be a useful means to identify unfamiliar words. Glance quickly at the word written below:

ozoniferous

As you glance at it quickly, can you pronounce it? What system do you use to try to pronounce it? It's possible that you used your own sort of "division system" to separate the word into pronounceable parts. If you used a rule-perfect system of dividing a word into syllables, you looked at this word in terms of the following parts: o zo nif er ous. Even if you did not separate the word into these exact parts, you may have used a system which yielded

similar parts and which enabled you to pronounce the word. Introducing students to words which are divided into smaller parts can be a helpful means of introducing unfamiliar terms.

2. Some words divide naturally into recognizable parts. These parts are easier for us to understand when they take the form of prefixes, roots, and suffixes which we commonly use. For example,

reconstruction conversation insoluble monologue can readily be divided as follows:

re construction con ser va tion in solu ble mono logue Our familiarity with other words containing similar word parts is an aid to pronunciation of such terms.

3. One of the most helpful techniques for identifying unfamiliar words is to look for smaller, familiar words within such terms readily fall into this category and can be taught by pointing out these familiar word parts. Examples include: *dividend*, *patronage*, *actress*, and *dichlorofluoromethane*.

Vocabulary

After recognizing the content-area term, students need a system to understand the meaning of the word—to make it a part of their vocabularies. Two techniques for determining word meaning are developing an understanding of the meanings of component parts of a word and utilizing context, or the rest of the sentence.

1. A knowledge of the meaning of commonly used Latin and Greek prefixes can be helpful in discerning the meaning of unfamiliar words. For example, apply what you know about the meaning of each component of the following words to determine what each word means:

(1) epitranscaputable (epi trans caput able)

(2) circumspherejectarium (circum sphere ject arium)

If you analyzed the first word correctly, you may have realized that each of the word parts convey the following meanings: epi—over; trans—across; caput—head; able—capable of. Thus by association of the parts of the word, an epitranscaputable is a hat. A hat is an object which is capable of going over and across the head. Through a similar analysis, you may have discovered that the second word is another name for a stadium. An indepth analysis shows the following meanings for the word parts: circum—around; sphere—ball; ject—throw; arium—place for; a stadium is a place for throwing around a ball. Although these examples are fictitious and extreme due to the sophistication of the reader's vocabulary, students can use a similar sort of analysis to discern the meaning of words such as ionosphere, decimeter, and democracy.

2. Students' success in using the context to discover the meanings of unfamiliar terms depends not only on their skills in using context but on the method in which textbooks explain the term. An examination of several science and social studies textbooks shows a variety of means of expressing the meaning of words. In some instances words were clearly defined; for example, "a triangle is a three-sided figure" or "Mercury, the closest planet

to the sun.” In other instances a more sophisticated method had to be used to determine the meaning of the term which the author had presented; for example, “the antagonism which was felt was reflected in his angry facial expression.” Students should be made aware of different examples of use of context to explain the meanings of terms in books.

Some teaching ideas for introducing vocabulary might include:

- (1) Introduce words in terms of a clue system – for example, word part meaning (*vulcanization* or *personification*).
- (2) Allow students to scan the chapters and write their own word list. Keep these words in a secure place, perhaps a notebook, so that they can be reviewed periodically.
- (3) At the beginning of each year, make a list of special terms relative to your content area and be sure to present them to students and to review them frequently. This list would include terms frequently used throughout the year; for example, a math teacher might list: equation, add, subtract, formula, problem, divide, multiply, answer, solution.
- (4) Devote a day each week to vocabulary studies through such activities as solving crossword puzzles, playing games, preparing projects or posters, conducting indepth studies.
- (5) Use materials other than books to show the relationships of the terms used in the books with everyday life and to current events. Such materials might include newspapers and magazines.

Comprehension

When students are able to recognize and understand the meanings of words, they will be ready to consider the meanings of entire passages. There are three aspects of comprehension which are important in content area reading.

1. The first is the ability to understand what is being read on a literal level. What the print says, it means; for example, “Put the burner under the flask,” or “Patton was a general.” Students’ abilities to comprehend on a literal level are based upon their abilities to recognize words and understand vocabulary and upon their attention to the material which they read. In order to strengthen their abilities to comprehend on a literal level, students might be asked to:

- (1) Turn to the index and find one word that tells *who*, one that tells *what*, one that tells *when*, and one that tells *where* and to write those words on a piece of paper. Students should then exchange papers and write sentences using their partners’ words. In some cases students may have to look up the words to see what they mean. An example of this might be: “Ben Franklin, Civil War, 1900, Hawaii ---”

Who – Ben Franklin

What – Civil War

When – 1900

Where – Hawaii

While Benjamin Franklin lived and the Civil War was fought before

1900, Hawaii became our fiftieth state well after the turn of the century.

- (2) Locate the most important words in each of the entries in the Table of Contents of the textbooks. Discuss what might be in the chapter based upon associations made with these words.
- (3) Consider a very broad topic such as “growth” or “war” and then asked to list words to describe the topic. After these lists are read aloud, a discussion should be held about how many words were presented that were factual and how many were interpretive.
- (4) Examine different sets of directions given in textbooks to see how literal each set is and to determine if there are any sets which could be open to different interpretations.

2. A second aspect of comprehension is that which requires interpretation by students. In dealing with this aspect, there is usually no one correct answer. In interpretations of a word, sentence, paragraph, descriptions will vary based upon what the reader brings to the situation. Our own “built in” set of opinions will influence how we interpret different passages. In addition, the author of the passage has added a great deal of his own interpretive remarks to each statement. Encourage students to check the identity of the author and to discover as much information as possible about him/her before reading a textbook, magazine article, newspaper article, etc. Make students aware of terms as a clue to the interpretation of a passage; for example, “thus,” “in other words,” “for example.” Ask the students to read a sentence or short paragraph orally; then ask another student to reword it in his own words. Discuss “what would you expect” situations with regard to different subject areas with students. In social studies, such a situation might ask for students’ reactions to “Rockefeller’s ability to describe poverty”; in science, “a non-oxygen environment”; in math, “to multiply by 10, 100, 1000”; in literature, “a conversation with Longfellow’s Hiawatha.” One key of interpretation that is often relegated only to primary years is that of examining pictures. Sometimes pictures can be very helpful to the student who is having difficulty in reading. One activity which is to ask everyone to open their textbooks to a certain picture, to write just one word to describe that picture, and then to read aloud that word and compare it with what other students had written.

3. A third aspect of comprehension is recognizing the importance of sequence. Establishing an order for items is important for scientists in terms of experiments and in terms of animal/plant development; in social studies, it is important in terms of steps which lead to, for example, battles leading to a war or controversy which lead to the passage of a bill or formative years which lead to a country’s principles. Requisite to solving math problems and understanding events in a story is a need for appreciation of sequence. Some content-related activities which might help students to master the idea of sequence include the following:

- (1) Ask students to scan textbook materials to find order words—first, next, finally and to. Make note of these.

- (2) Create “what if” assignments for students to respond to. These might include---

What if we put the Bunsen burner under the flask before we add the liquid?

What if the Founding Fathers had elected a national leader and then formulated provisions for running the country?

What if our muscles moved before receiving signals from the brain?

What if we subtracted 493 from 322 before we added 367?

- (3) Allow students to make mural size models whenever possible of such things as historical events, country development, animal development, spatial relations. Be sure students include not only pictures but also words to label each thing going on. These words might be written on separate cards so that they could be removed, mixed, rematched, and replaced in the correct positions.
- (4) Before beginning a unit, present students with a list of words related to that unit and ask them to put them in a logical order.
- (5) As a written assignment, present students with some order words – such as first, later, finally, following, soon—and a few important words—such as Civil War, slaves, Lincoln, Freedom—and ask them to write a paragraph using all the words given. They may, of course, add other words which they feel are necessary.

Study Skills

Each content area has some study skills which are specific to it, but there are some skills which are common to all subject areas. In all content areas students are required to locate information. Their search for this material might require the textbook, dictionary, atlas, chart, globe. Discuss all these things with students. In conducting dictionary activities, be sure to point out the guide words and note how they can be useful. In discussing charts, ask students to open or look at a chart and to note what things they look at first; point out means by which charts may be drawn to help emphasize the author's point.

One of the most difficult assignments for students seems to be to obtain information from the reference and to rephrase it in their own words. Some activities which might be useful in encouraging students to do this are:

1. Ask them to reword famous quotes—“Give me liberty or give me death.”
2. Ask students to read an experiment, a word problem, or a description of a happening or character and then tell in their own words what happened or what the person might look like or do.
3. Allow a student to do a demonstration and then ask other students to detail exactly what he or she did.
4. Keep a file of newspaper and magazine clippings related to the different units which you plan to be teaching. Present one clipping to each

student and ask them to read the clipping silently and then report to the class concerning what was contained in the clipping.

The fact is that millions of dollars have been, are being, and will be spent to purchase content-area textbooks. While there are certainly changes in the texts which could be made to make them more interesting and more readable, it is a shame to waste the content-area resources now at rest on school shelves and to ask teachers to spend much of their time searching for alternate teaching aids. Taking time to give attention to word recognition, vocabulary, comprehension, and study skills related to each subject area can enable teachers to use available resources, to save time, and to teach content-related subjects!