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# USING STUDENT PREDICTIONS TO TEACH CONTENT AREA VOCABULARY

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When content area teachers get together and talk about helping their students learn, the discussion usually comes round to the importance of key vocabulary and concepts needed for the subject matter. Often, content teachers express frustration because their students do not succeed in learning and using the specialized technical vocabulary in their fields. They receive little support from investigations related to reading (Weintraub et al, 1980, 1981, 1982) since less than 1% of the studies on vocabulary deal with meaningful acquisition of content related terms.

No article can constitute a panacea for teaching terminology. However, a process that may alleviate some of the frustration experienced by both teachers and students is called predictions. In it, students make active contributions under the guidance of the teachers. We believe teachers should incorporate predictive behaviors into vocabulary instruction, using three strategies that promote such learning involvement, described below.

## Rationale for predictive behaviors

Any reading involves the active construction of meanings based on anticipations of incoming words (Adams and Collins, 1979; Smith, 1982; Stanovich, 1980). Indeed, knowledge of word meanings and the ability to manipulate words and concepts have been found to be the two most important factors in reading comprehension (Davis, 1944, 1968, 1972).

Since anticipation and meaning construction require that words be embedded in a text, it is natural that context would prove to be the greatest facilitator of acquiring both vocabulary and concepts (Crist and Petrone, 1977). Similarly, it has been found that although specialized terms may be more unfamiliar to learners than general terms, specialized terms actually provide more information about their meanings (Finn, 1978).

Even with predictions based on context, readers would suffer from information overload if they could not somehow focus their attention (Smith, 1982). Teachers can give direction to students' attention by setting purposes for reading. Purpose setting improves the kind, level, and degree of comprehension (Stauffer, 1975). Having intentions for one's reading is important for students of all ages especially with expository texts (Just & Carpenter, 1980; Kintsch & van Dijk, 1978).

## Strategies for enhancing prediction

The following strategies encourage the predictive behaviors of students attempting to acquire new vocabulary. The strategies involve the kinds of thinking associated with anticipating meaning, using context, and relating text to a purpose. They stimulate learners to make connections between old and new information. A sample lesson for each strategy is described.

Contextual Redefinition asks students to predict the meanings of words presented in isolation and then to verify the meaning from the words' use in context. Figure 1 illustrates the procedure with key vocabulary from a geometry class.

### Sample Lesson for Contextual Redefinition (Geometry Class)

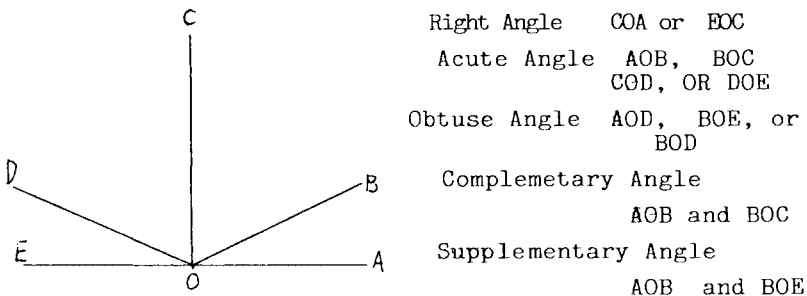
Words to be introduced—

Complementary Angles	Obtuse Angles	Right Angles
Supplementary Angles	Acute Angles	

Sentences presenting words in context—

Complementary Angles always total 90 degrees.  
Supplementary Angles always total 180 degrees.  
 Street corners are usually at Right Angles.  
Obtuse Angles are larger than Right Angles.

Illustration presenting words in context—



The steps for contextual redefinition are:

1) The teacher selects new key vocabulary terms. They should always be important to understanding the concepts being introduced.

2) The teacher writes a sentence which provides context clues that the students may use to determine the meanings of the terms. Different types of context clues can be used (McCullough, 1958; Ames, 1966), such as comparison/contrast clues, linked synonyms, other words that set the mood or tone of the sentence, or simple definitions. Ideally, these sentences are taken from course work.

3) One at a time, the terms are presented to the students in isolation and students discuss what the terms might mean. All

their suggestions are recorded on the board. Then, as a group, the class decides what are the best possible meanings. Though some of the students' definitions may seem bizarre, it is amazing how many times an off-the-wall answer leads to the appropriate responses.

4) Next, the teacher presents each word in context, and students speculate on their meanings. Students should be ready to defend their answers. Not only does this cause students to think more about the context clues provided, but it also allows poor readers to see how their more able peers use context to determine word meanings.

5) In the final step students use another source to verify their word meanings. A dictionary, the glossary of the students' textbooks, or some other reference materials (charts, graphs, or illustrations). At this point it is interesting to refer to the students' original predictions to see whether any were close to the actual meanings of the terms.

Besides providing practice in using context clues and reference sources, contextual redefinition serves several other functions. Most important of these is that of creating interest in the terms to be studied. Students are enthusiastic, finding out whose predictions are correct. Because the terms are unfamiliar to most students, there is little fear of being wrong. They feel free to get involved in the predicting parts of the lesson. Finally, the procedure encourages students not to stop reading when unknown words are encountered. Contextual redefinition promotes the attitude that guessing about the meanings of unknown words is desirable.

Possible sentences (Moore and Arthur, 1981) is another strategy designed to help students independently determine the meanings of unknown words through prediction. Instead of simply giving students definitions of words prior to reading, teachers have students create sentences containing two or more of the new terms. Through this process, students are encouraged not only to speculate on word meanings, but also on the interrelationships between concepts. Figure 2 shows the possible sentences procedure used to introduce terms in a biology class.

Figure 2  
Sample Lesson for Possible Sentences  
(Biology Class)

Words to be introduced—

protoplasm	chloroplasts
mitochondria	cell wall
nucleus	cell membrane

Student generated sentences—

The protoplasm was in the cell membrane.

The nucleus has chloroplasts.

Mitochondria need protoplasm to live.

The cell wall and cell membrane are the same thing.

The steps in possible sentences are:

1) The teacher selects key vocabulary terms from the text. These should be words that are defined adequately by their context, because students will later use the text to verify or refute the predicted meanings. Words are then presented to the class and pronounced several times.

2) Next, students create sentences using two or more of the new words as the teacher records each sentence verbatim on the board or overhead transparency. This process continues for a given period of time or until a certain number of sentences have been created. Words may be used more than once, but an effort should be made to use every word.

3) Now, students read the text selection to check their prediction as students critique the sentences. The following questions should be asked: Which sentences are correct? Which need modification? What are those modifications? Are there any sentences which cannot be verified? The teacher plays an important role in guiding a discussion and requiring that students' answers must be supported using information from the text.

4) After all modifications have been made and recorded, students are called upon to generate new sentences. These sentences may be evaluated as they are dictated. Students should modify these sentences to clear up misconceptions or to elaborate on each other's ideas.

Using prediction in possible sentences piques students' curiosity, question-raising behaviors, and self-checking ability. Students should ask themselves: Are my ideas right? Are the terms related in the way I have guessed? Motivation and purpose for reading are established as students read to verify the predictions. Finally, teachers are given an opportunity to assess their students by the quality of their sentences.

Analogical Previewing. "Analogical previewing (Martin, 1980) uses the time-honored notion of relating the new to the known. In this procedure, students use analogies to explore the meanings of unknown words by investigating how these terms are related to familiar ones. Figure 3 shows how the procedure was applied to vocabulary being introduced in a social studies class.

Figure 3  
Sample Lesson for Analogical Previewing  
(Social Studies Class)

Words to be introduced—

Samuel Gompers      Haymarket Riot      Molly Maguires

Analogies presented to students—

Samuel Gompers : Labor Union :: George Washington : United States

Working conditions : Haymarket Riot :: Pearl Harbor : WWII

Molly Maguires : Employers & Strike Breakers :: KKK : Blacks

The steps to analogical previewing are as follows:

1) The teacher selects important terms. These should be words that relate to important concepts and that can be explained through analogies. For instance, the term habitat could be introduced using the analogy—people : neighborhood :: animal : habitat. Students can use their knowledge of familiar terms and the relation among the terms to predict the meaning of new words.

2) An analogy is then written which gives students a clue to the meaning of the new term. It is important that students are familiar with the other terms used in the analogy, as in the example just presented on habitat.

Depending on the ability and background of the students, teachers may wish to make the relations presented in the analogy very explicit—electron : nucleus :: moon : planet; or more open to interpretation and discussion—stonewall : Watergate :: dam : river. The analogies which are presented also may refer to material which has been previously studied, e.g., Pharoah : Egypt :: Caesar : Rome.

Throughout analogical previewing, different types of relationships should be explored. Students should be given practice in exploring part-whole, synonym, antonym, and similar function analogies (Bellows, 1980; Ignoffo, 1980).

3) The analogies are presented to the class, using the chalk-board or overhead projector, and students brainstorm possible meanings of the new terms. As they respond, their answers are recorded on the board. Students should be encouraged to describe all aspects of the concepts as well as the relations among the terms in the analogies. Formal definitions are not required as the idea is for students to discover as much as possible about the new concepts and how those new concepts relate to what students already know.

During this part of the lesson, the teacher directs discussion of the analogies by asking questions which guide students' thinking processes. For example, using the Watergate analogy presented above, the teacher might raise these questions: What would happen if the dam broke? What happens to a dam when it develops a small leak? What are the advantages of holding water behind a dam? What are some of the problems? Answers to these questions are then related to the analogous relationship of stonewalling and Watergate.

4) Finally, the analogies are reexamined through discussion of the predicted meanings and answers to the questions. Further discussion may revolve around answers to the following: Which ideas were correct? Which needed modification? Can some of the earlier ideas be elaborated? Teachers should try to bring out aspects of the meanings and relations of the new concepts that were not discussed previously.

By exploring analogies to learn new terminology, students are able to activate and use prior knowledge of concepts and their interrelationships. Besides providing review of previously learned material, an active process is being taught that directly involves the students in a search for meaning. Interest is created and

an inquiring attitude toward vocabulary learning results.

### Summary

Prediction is an inherent and important feature of reading. This article has suggested three strategies teachers can use to capitalize on students' predictive behaviors to facilitate the acquisition of content area concepts and vocabulary. Each incorporates the notion of predicting, reading, and verifying under the guidance of a skilled teacher. By using these steps, teachers are not only effectively introducing new words to their students but are also teaching them a process by which they may become more independent readers.

### REFERENCES

- Adams, M.J., and A. M. Collins. "A Schema-Theoretical View of Reading." In Discourse Processing: Multidisciplinary Perspectives, R.O.Freedle (Ed.) Norwood, NJ: Ablex Pub Co, 1979.
- Ames, W.S. "The Development of Classification Scheme of Contextual Aids." Reading Research Quarterly, Vol 2 (1966), pp. 57-82.
- Bellows, B.P. "Running Shoes are to Jogging as Analogies are to Creative/Critical Thinking." Journal of Reading, volume 23 (March, 1980), pp. 507-511.
- Crist, R. L., and J. M. Petrone. "Learning Concepts from Contexts and Definitions." Journal of Reading Behavior, Vol. 9 (Fall 1977), pp. 301-303.
- Cunningham, J.W., P. Cunningham, & S.Arthur. Middle and Secondary School Reading. New York: Longman, 1981.
- Davis, F. B. "Psychometric Research on Comprehension in Reading." Reading Research Quarterly, vol. 7 (Sum 1972) pp. 628-678.
- "Research in Comprehension in Reading" Reading Research Quarterly, vol. 3 (Summer 1968), pp. 499-545.
- "Fundamental Factors of Comprehension in Reading." Psychometrika, vol. 9 (Winter 1944), pp. 185-197.
- Finn, P.J. "Word Frequency, Information Theory, and Cloze Performance: A Transfer Feature Theory of Processing in Reading." Reading Research Quarterly, vol 13(1978), pp. 508-537.
- Ignoffo, M. F. "The Thread of Thought: Analogies as a Vocabulary Building Method." Journal of Reading v. 23(1980) pp. 519-521.
- Just, M.A. & P. A. Carpenter. "A Theory of Reading: From Eye Fixations to Comprehension." Psychological Review, vol. 87 (1980), pp. 329-355.
- Kintsch, W. & T.A.van Dijk. "Toward a Model of Text Comprehension and Production." Psychological Review, vol 85 (1978) pp. 363-394.
- Martin, C. E. "Teaching Vocabulary Through Word Associations." Paper presented at the Annual Conference of the Georgia Council of the I.R.A., Atlanta, Georgia, March 1980.

- McCullough, C.M. "Context Aids in Reading." The Reading Teacher, vol. 11 (April 1958), pp. 225-229.
- Moore, D. & S. Arthur "Possible Sentences." In Reading in the Content Areas: Improving Classroom Instruction, edited by E. K. Dishner, T. W. Bean, and J. E. Beadence. Dubuque, Iowa: Kendall/Hunt Publ. Co., 1981.
- Smith, F., Understanding Reading (3rd ed.), New York: Holt, Rinehart and Winston, 1982.
- Stanovich, K. E. "Toward an Interactive-Compensatory Model of Individual Differences in the Development of Reading Fluency." Reading Research Quarterly, vol. 16 (1980), pp. 32-71.
- Stauffer, R. G. Directing the Reading-Thinking Process. New York: Harper & Row, 1975.
- Weintraub, S., H.K.Smith, N.L.Roser, W.R.Hill and M.W.Kibby (Eds.), Annual Summary of Investigations Relating to Reading. Newark, Delaware: IRA, 1981.
- Weintraub, S., H.K.Smith, C.P.Plessas, N.L.Roser, W.R.Hill, and M.W.Kibby (Eds.) Annual Summary of Investigations Relating to Reading. Newark, Delaware: IRA, 1982.
- Weintraub, S., H.K.Smith, N.L.Roser, M.Rowls, and W.R.Hill (Eds.), Annual Summary of Investigations Relating to Reading. Newark, Delaware: IRA, 1980.