Enhancing Comprehension Through Reading Instruction

A. Harold Skolrood and Mary-Jo Maas
University of Lethbridge

In a previous article published in *delta-K* (Volume XXV, Number 2, March 1986), the authors explored the relationship that exists between the process of problem solving in mathematics and the social inquiry process in social studies. Fundamental to understanding the content of a problem or social issue is the ability of students to read and interpret the printed word before they can develop a mental construct of the intended solution or decision to be made.

We have often heard the statement, "My students cannot read the prescribed material. They have difficulty with the words and do not understand the meaning of the content." What do we mean by reading? We know that it is an activity in communication, basic to securing some comprehension from the printed page. Reading is a decoding or deciphering process through which we translate the written symbols into an expression of meaning. In the process, meaning is attached to the written symbols. Students need help and training to learn a process for translating symbols into meaningful understanding, a fact crucial to determining the task inherent in a problem. The often repeated phrase, "every teacher is a teacher of reading," is more than a cliche; it is basic to the teaching of any subject. Perhaps it is more accurate to say that every teacher is a "teacher of reading and interpretation in a specific subject."

In both mathematics and social studies, where the focus is problem solving, the ability of the students to read, interpret, and infer meaning from a problem is crucial for insight into the process of solution. The directed reading process, traditionally used by the language arts teacher, can be just as effective in social studies or mathematics. The directed reading process can help the teacher and the students better read and understand the problem.

Teachers need to be more cognizant of how the specialized vocabulary of a subject has specific meaning or connotation in context. Teaching strategies that emphasize accurate definitions, the relating of word meaning to the personal experience of students, and the identification of the root, prefix, or suffix of a word help students to understand new vocabulary. Direct vocabulary teaching may also be necessary before beginning to determine the intended solution of the problem.

A series of lessons might be used to teach students a systematic approach to understanding a problem. Another way would be a simplified combination of steps conducted in a single lesson, which requires less practice. Extended practice would occur through the working out of problems.

Lesson One. In the first lesson, students are given a word problem to read. The students are to answer: "What is the question?" or "What are

we to find?" It is not sufficient for students simply to read the question as it is stated in the problem. Rather, students should be asked to state the question in their own words. Several problems should be given to the students so that they become proficient at determining the question and restating it in their own words. Once the students can do this with little difficulty, problems may be developed and shared with the class. If students understand the problem, similar problems may be developed, or students may rewrite or retell them in their own words. In restating the problem, students should be encouraged to use appropriate synonyms related to the subject area.

Lesson Two. The second lesson should be built upon the first and focus on the ability to describe what quantities are involved, or what information is given. Adequacy and relevancy of the information should be determined. Again, students should be asked to state these quantities or information in their own words.

Lesson Three. In the third lesson, the teacher and students can begin to describe the process(es) that may be used to solve the problem. In social studies, the intended outcome, in terms of predicting a solution, may of itself determine the process; for example, historical research versus map study require different processes. The teacher is still not asking students to solve the problem, only to consider the kinds of process(es) that could be used. The students are encouraged to come up with as many different ways to solve the problem as possible. This helps students to overcome the idea that there is only one correct way to solve a problem. Problems in mathematics may be solved in more than one way, as well. Whatever process is chosen, students should be able to support their choice.

Lesson Four. Lesson four in the directed reading process is the actual solving of the problem. This step should not be introduced until students are comfortable and proficient with the other three steps. If the directed reading process has been followed up to this point, the teacher should feel confident that growth in the students' vocabulary development, reading development, and subject skills and ability to fully comprehend the meaning of the problem has occurred. Once the solution has been obtained for the mathematics problem, or a decision made on the social issue in social studies, the students should be encouraged to recheck their work to verify the accuracy of what has been done.

If students are exposed to the above process at the beginning of a semester, subsequent experience in its application would be an integral part of their thinking in terms of problem solving. They will develop a model for thinking that has transfer value in other subject areas. Thus, the product of such formal instruction should be students who will have the necessary cognitive skills to approach a problem in mathematics, or the social issue in social studies, in a systematic manner.

The charts on the following pages illustrate the process of reading a problem, as described in this article.

Dr. Skolrood is a professor of education specializing in social studies at the University of Lethbridge. Mary-Jo Maas was seconded to the Faculty of Education at the University of Lethbridge during the school year 1985-86. Mary-Jo will resume her teaching career in Fort Macleod in February 1987.

Directed Reading Process

	STUDENT ACTIVITIES	
LESSON 1.	Mathematics	Social Studies
WHAT IS THE PROBLEM? - from textbook curriculum guide - teacher - student	State problem in own words. Tell a friend. Write problem in own words. Develop similar problem.	State as a "should question" - What ought to be? List key words. Define terms.
LESSON 2.		
WHAT INFORMATION IS NEEDED? 1. Information within problem (adequacy of information given). 2. Insufficient/sufficient information. 3. Recall of pertinent information. 4. Reference to data sources: charts, graphs, tables. 5. Additional information needed (research).	Underline key words. Share with a friend. Compare notes. Supply missing information. List relevant information. Cross out irrelevant information. Rewrite, deleting extraneous information. Definition/clarification of terminology. Recall formal equation. Construct similar problem. Identify facts needed in operation.	Underline key words. State concern with problem. Identify difficult words. State problem in own words. Definition/clarification of terminology. Identify specific factual data inherent in the issue. Restate the issue more accurately. Supply additional information through experience/ library research - use resources. Restate issue orally in terms of understanding its intent.

	STUDENT ACTIVITIES	
LESSON 2. (cont'd.)	**Mathematics**	**Social Studies**
	Supply additional information for interpretation. Restate problem orally in terms of understanding its intent.	
LESSON 3.		
WHAT PROCESS IS USED TO SOLVE THE PROBLEM?	Supply formula. Identify process. Use problem-solving steps. Cue words. Trial solution.	Indicate steps of social inquiry as per curriculum guide.
LESSON 4.		
SOLVE THE PROBLEM. Verification.	Solve the problem. Check process. Check reasonableness. Verify solution.	Identification of conflicting values. Make decision on the issue. Select a value position. Consider application of decision: desirable/undesirable; feasible/infeasible.