October, 1995 - Michael B. Sheehy, Mathematics

If you are interested in increasing the amount of time your students are actively engaged in learning, then you will be interested in "paired problem solving," a technique developed by Arthur Whimbey and Jack Lochhead. This method should help your students develop better skills to analyze problems and increase their reading and learning comprehension. In addition, it will give you another technique to vary your classroom routine.

If you decide to use this method in your classroom, you must first divide your class into pairs. Each pair of students works on some problem: non-routine or multi-step problems work best. While one student listens, the other reads and thinks aloud. On subsequent problems, the students change roles so that each gets to be a problem solver as well as a listener.

Students assigned the role of listener function like a monitor. The part they play is as important in the learning process as the part played by the problem solvers for the listeners must keep the problem solvers on the right track. As a result, you must not allow the listeners to sit back inattentively with their minds elsewhere. Instead, you need to remind them that they should continually check the problem solver's accuracy and demand constant vocalization. More specifically, you must ask the listener to fulfill the following obligations:

Listener's Responsibilities

1) Listen carefully.
2) Encourage vocalization.
3) Ask for clarification.
4) Check for accuracy.

Examples

1) Can you repeat this? 2) Slow down. I'm not following you. 3) What are you thinking? 4) Can you explain what you are writing? 5) What do you mean? 6) Can you say more about that? 7) Are you sure about that? 8) That doesn't seem right to me.

In addition, the listener must not:
1) give hints.
2) solve the problem herself or himself.
3) tell the problem solver how to correct an error.

As your students become more experienced and comfortable in using this technique, they will become more sensitive to the kinds of errors that problem solvers may make. Thus, they will become more and more adept at noticing those errors.

Example Problems

1) Cathy knows French and German. Sandra knows Swedish and Russian. Cindy knows Spanish and, French. Paula knows German and Swedish. If French is easier than German, Russian is harder than Swedish, and Spanish is easier than French, which woman knows the most difficult languages?

2) In a different language luk eir lail means "heavy little package," bo lail means "heavy man" and luk jo means "pretty package." How do you say "little man" in this language?

Reference

Whimbey, Arthur and Jack Lochhead. 1991. *Problem Solving Comprehension*. Lawrence Erlbaum Associates.