

REACTION: VOCABULARY INSTRUCTION IN MATHEMATICS

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Some of the research of the past has suggested that a direct study of mathematics vocabulary alone can produce significant gain scores on mathematics tests. What perhaps is surprising to mathematics teachers about the Sullivan paper is that the identified vocabulary comprising more than one-half of the vocabulary used in mathematics texts from K-6 represented "little" words. What is even more surprising is that almost three-fifths of the words were not mathematical terms. Perhaps many mathematics teachers would have assumed that the proper place to begin vocabulary instruction would be with mathematics terminology. They might also have failed to realize that just because a child can pronounce a "little" word that does not necessarily mean that he knows the meaning of the word, especially in a mathematical context.

Even though no statistical significant differences were found between the control and experimental groups, the overall direction of the research seems promising. Perhaps as Sullivan suggests, more than a three week time period is needed (students were only given thirty minutes each day of the three weeks) to ensure that the students had mastered the meanings of the words.

The Sullivan study apparently was also limited in that the research was done during a three week summer mathematics enrichment program. Evidently all students in the study had to have two hours of mathematics instruction each day; therefore, having a typical "control" group was impossible. Both the experimental and control group of the study received three-fourths common treatment, and possibly this is what caused the 6.6 months gain on the *Metropolitan*. It is possible that neither the teaching of the meanings of the vocabulary words for the experimental group nor the drill on basic facts for the control group contributed to the gains on the test. What is needed then is a third group, one that gets the same three-fourths treatment that the two groups got in the study, but does not receive either the teaching of the vocabulary or the drill on the basic facts. It may be that scores for the group that receives vocabulary instruction and the group that receives drill on basic facts would not be significantly different, but both methods might be superior to scores that the third group would have. This information could be extremely useful to teachers. If this finding were the case, then one could legitimately conclude that instruction on vocabulary would be as effective as basic drill and that either process could improve mathematics scores. On the other hand, if there were no significant differences in the scores of the three groups, then neither teaching the vocabulary nor doing the drill would be recommended.

In spite of these criticisms, the research by Sullivan is encouraging. Results from her longer study now in progress should have even more valuable information for the mathematics and reading teacher.