AN INTRODUCTION TO MATHEMATICS AT THE FIRST GRADE LEVEL, WITH SPECIAL EMPHASIS UPON THE LESS-MATURE LEARNER

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Within the last fifteen years objectives in the field of mathematics have been re-examined and broadened so as to more nearly fit the requirement of daily life. Both the teaching and learning of mathematics have benefitted from an increasing attention upon the development of meaningful number concepts and a de-emphasis upon the rote learning of number facts as such. Authorities have been in agreement on the need for teaching procedures that will develop mathematical understanding, but the procedures differ markedly.

The writer of this thesis recognizes the value of the new mathematics programs but specifically is interested in the value of a program in assisting immature children in the first grade in gaining an understanding of our number system. No individual program, according to the writer's knowledge, is specifically planned with the slow-learning child solely in mind. Therefore, the writer has examined various programs and incorporated ideas from each into a feasible program for the beginning of one particular first grade classroom.

Chapter one opens with the need for the study. It reviews the background of mathematics and extends to the meaningful approach which helped to foster the introduction of the so called "modern mathematics" into the elementary school. This meaningful presentation gives children a method of work by which they can solve their problems and see the relationship which exists between the various mathematical concepts. A definition of mathematics is included along with the uses of mathematics in daily living.

Chapter two provides a brief history of the drill theory, incidental learning theory and meaning theory. Some new trends in the teaching of mathematics are listed to emphasize a more meaningful approach for better understanding. Those explained are: (1) sequentiality of mathematical concepts; (2) an earlier introduction to formal mathematics; (3) use of manipulative materials for developing mathematical concepts; and (4) the use of the discovery approach for understanding mathematical concepts.

Chapter three contains a summary of each of the following new "modern mathematics" programs: School Mathematics Study Group, Wirtz-Botel Workshop, Madison Project, Suppes' Program, and the Greater Cleveland Plan. A description of various manipulative materials is also given. Those included are: magnetic discs, flannel board, arithme-sticks, number line, perception cards, toothpicks, pattern builder, counting frame, and cuisenaire rods.

In chapter four an attempt is made to describe what happened in one first grade classroom during the first eight weeks of school as the teacher sought to make children's understanding the cornerstone of teaching and learning mathematics. The approach incorporated ideas developed and used in many of the newly established mathematics workbooks and programs as well as some of the older methods.

Chapter five points out that much remains to be done in the teaching of mathematics to the slower learning child at the first grade level. Instituting a formal program in and of itself is not sufficient unless consistently throughout the instruction at the first grade level children are guided to develop a way to think about amounts, sizes and quantities. The extent to which the instruction influences the slower learning child determines his ability to think. It should aim at helping him develop

(1) a method of attack, (2) self-confidence, and (3) a power to recognize relationships which are inherent in our number system.