



**Using Worksheets in Early Childhood Mathematics Education (ECME)**

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Foundational mathematical knowledge has a tremendous impact on later school achievements and on an individual's life. The ability to

solve problems using mathematical thinking is crucial, for example, for artistic and economic development.

Most early teaching of numbers and numerals has been oriented to school preparation. Even though play and hands-on activities are key components of early childhood mathematics education (ECME), there is a tendency to rush children into the use of symbols and conventional printing. This pressure in math curriculum delivery works against children's developmental trends and children's learning in mathematics (Munn, 2006).

Using worksheets to write conventional numbers is an ineffective strategy to teach number representation to young children. Number printing implies the use of symbolic notations. Studies suggest that symbolic understanding evolves gradually and that symbols become meaningful with time (Bialystok & Codd, 2000; DeLoache, 2004). According to Piaget (1953), the construction of number concept develops between two and seven years of age. Children do not fully understand what

meaning numerals have before the age of six. Therefore, worksheets, where young children simply print conventional numbers become irrelevant.

Mathematical worksheets involve children Doing repetitive, non-problematic exercises that give a false appearance of mathematical understanding:

the drills that appear in most worksheets do not help students develop new ideas, concepts, or skills (Van de Walle, 2001). When students use worksheets, they learn only one way to answer without considering alternatives.

Misconceptions about children's mathematical symbolic learning and the lack of related pedagogical research have been affecting ECME. Activities that are not developmentally appropriate (such as mathematical worksheets) are being provided to young children (Arias de Sanchez, 2010).

ECME cannot deny the mathematical practice of printing numbers and it should provide appropriate contexts for children to experience it. A key focus should be on children's developmental trends and how children think about number and number representation.

Merely completing a worksheet does not signify a child's ability to comprehend number concepts. Educators need to recognize that mathematical understanding is more than recognition and printing of numerals. Effective early childhood mathematics education should provide rich contextual opportunities for number printing, but contextual opportunities for number understanding should be the priority, especially between the ages two and five.

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