Learning Multiplication beyond the Tables

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This paper presents a case study that refers to one critical point in learning mathematics at school: multiplication. The research team assumed the role of tutors, of a group of seven children, ages between 7 to 12, along four consecutive years.

As an outcome of this tutorial endeavour, four conceptual requirements aroused as prerequisites for conceptualizing multiplication. These requirements are:

- Forming groups, each group containing the same amount of things as the others.

- Embedding equal parts in a whole.

- Giving meaning to the expression: how *many times*.

- Establishing relationships of correspondence.

These requirements are discussed here, together with the corresponding devised and validated learning situations involving tangible objects.

Each requirement addresses demands at the logic-mathematical level implied in the coordination of the three quantities involved in this operation, and which are necessary for children to construct conceptual meaning of multiplication. It involves more than memorizing multiplication tables, for it is necessary that children become able to solve problems in daily life contexts including situations of multiplication. This ability is assumed here as validating criterion for the conceptual construction.

Contribution of this paper refers to the proposal of four aspects implied in the construction of a mathematical concept of multiplication. Stating explicitly the requirements of mathematical thinking for conceptual construction and, consequently, proposing didactic activities for that acquisition is a scarce outcome of the current research being done in mathematics education in Colombia.