

EVOLUTION OF PUPILS' MATHEMATICAL PROCEDURES TO SOLVE MULTIPLICATION TASKS

Fátima Mendes^{1,2,4} Joana Brocardo^{1,2} & Hélia Oliveira³

¹Escola Superior de Educação, Instituto Politécnico de Setúbal

²Unidade de Investigação do Instituto de Educação, Universidade de Lisboa

³Instituto de Educação, Universidade de Lisboa

Research with a focus on multiplication is quite extensive. We can identify an emphasis on prominent lines: semantic types of situations, intuitive models and computational strategies. The last one includes empirical studies that relate computation strategies with the type of problems proposed and other that characterize the strategies invented by students (Baek, 2006). Several authors argue that pupils' understanding of multiplication evolves when they face situations that make emerge key aspects, such as, the ideas, the strategies and the models (Treffers & Buys, 2008).

This paper draws on the analysis of procedures used by third grade pupils who participated in a teaching experiment on multiplication, during eight months. The class is the direct source of the data and the main collecting tool is the researcher (the report's first author) through a detailed observation of the events in the classroom. Data includes field notes, transcript of videotaped classroom episodes and pupils' written work.

The analysis of classroom episodes and pupils' written work allows us to characterize the various procedures used by them to solve multiplication problems and its evolution. Three main aspects are revealed. The first one is related with the diversity of procedures which are used by the pupils to solve a problem. The second is related with a pattern of evolution in the use of procedures which are increasingly formal and effective. This progress is not standard and changes with the introduction of new numbers and less familiar relations. A third aspect emphasises the relationship between the proposed contexts and the numbers included, and the pupils' procedures, suggesting the adequacy of the given contexts in the learning of multiplication.

References

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