

CHILDREN'S STRATEGIES TO SOLVE PROPORTION PROBLEMS IN A REAL WORLD CONTEXT

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Traditional education of proportionality has a strong algorithmic orientation by Portuguese teachers. Rate and proportions makes part of the 6th grade students curriculum (11 years old) and most of the students show difficulties in using the equation $a/b = c/x$ to find the missing value.

This study was carried out with 4th graders pupils (9 years old), following a work project methodology. Children negotiated with the teacher the projects which they will be developing, they moved out in real world in order to find the information they needed, and returning to the classroom where they tried to answer the questions they had related to their problem. After that they had to communicate the project to their colleagues, explaining all the procedures. The problem chosen by a group of 4 children which will be presenting in this communication is "How much cost to travel by car?" During the development of the project pupils were not taught by the teacher any formal or informal process to solve the problems that children faced. They just had to mobilised basic arithmetic skills they already had.

During this communication will be analysed students strategies as well as the development of ratio tables they invented to systematise the reasoning. Rogoff (1984) argues that thinking is deeply related *to the context of the problem* to be solved which includes the problem's physical and conceptual structure as well as the purpose of the activity and the social milieu in which it is embedded. This may explain the level of performance shown by these children in solving the proportion problems directly related to their lives and interests. Lamon (1993) and Hart (1983) consider that formal instruction and conventional symbolism should take advantage of students' invented strategies in solving rate and proportions problems and that the best time to teach a child a new skill or idea was when it was needed, because the child was faced with a situation that could not be dealt with using the previously used methods.

References:

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