

SOLVING OF CONTEXT TYPE MATHEMATICAL PROBLEMS¹

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The framework for this research is a proposal for assessing mathematics learning in Secondary School by means of problem solving, using a qualitative study in geometry and a quantitative study in algebra and geometry. To that end, assessment instruments concerning both areas of mathematics were designed and validated, having regard to the Main Objectives and Minimal Compulsory Contents for Secondary School stipulated by the Educational Reform in Chile.

A classroom experience in geometry was devised. The teaching methodology of mathematics during that experience related the study of algebraic concepts and problem solving in order to lead specifically to the concept of flat shape in the second year of secondary school. Student centred tasks were favoured, which encouraged group discussions and provided interactive practice activities with the teacher. This classroom procedure was based on a constructivist view of learning and was supported by instructional material devised specifically to meet the needs of the research. Similarly, the outcomes and learning skills of two thousand and three third and fourth grade secondary school students were assessed. These students were chosen from all third and fourth year secondary schools, some of them Scientific-Humanist State Schools and others Sponsored Schools, from the Tenth Region of the Lake District, in southern Chile. The assessment instruments included the solving of types of problems categorized as routine and non-routine, based on their nature; and into real, realistic, fantasy and purely mathematical, based on their context (Díaz, Poblete, 1999).

The results of the qualitative study show that there is a significant and generalized increase in the development of certain skills and in the use of knowledge specifically related to the teaching of geometry by means of problem solving. On the other hand, the quantitative study reveals students' general poor skills and a more discrete skill in the solving of real context and non-routine problem types.

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