**Abstract**

This paper reports a study of students' understanding of artefacts through their drawings and descriptions. The experimental design of the study carried out with 12 middle School students (ages 11- 13 years) involved four stages: pre-test, intervention and post-test, followed by a semi-structured interview of each student. The intervention activities engaged students in filling a questionnaire by estimating and measuring dimensions of a variety of artefacts of common shapes and sizes, writing their descriptions, and in repairing a bicycle. The study analysed students' paper-pencil productions in the tests and the questionnaire, and audio and video data collected during the intervention and interviews. The effect of the intervention on the nature of depictions of proportions and dimensional attributes in the drawings depended on the context of problem solving. Interviews helped to make explicit the meanings ascribed by students to the descriptions and the strategies used by them in their object depictions. The study highlights the importance of engaging students in authentic contexts of problem solving, and making drawings in such contexts.