

## RELATIONS FOR FIFTH TO EIGHTH GRADERS

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Igliori et al. (2000) checked, in a late study, that 5<sup>th</sup> graders restricted the meanings of the relations *come before than* and *not come after than* in solving problems. For these students, *come before than* meant *come immediately before than* and, in the ordering relation *not come after than* (equivalent to *come before than* or *at the same time as*), they did not admit *come at the same time as* as an ordering. The authors also checked if it was possible to see an improvement in the knowledge of students subject to a didactic intervention. Bearing in mind that establishing relations is adamant for the learning of mathematics in the various teaching levels, the authors elaborated the present study, which widened the former, based on the following question: Did 5<sup>th</sup> to 8<sup>th</sup> graders have the same problems diagnosed in the late research? And if they had, was the evolution of a restricted conception to a broader one different for each grade for the same didactical intervention? To this end, questions about enunciations of the following kind were proposed: *A teacher could not figure out the exact order of her students' arrival. Give the possible orders of arrival according to the statements students gave her: João said that he came to school before Eni. Eni said that she came before Bia. Rita could not remember the arrival of her mates, but she was sure she came before Eni.* The research was conducted among 4 groups of 5<sup>th</sup> to 8<sup>th</sup> graders (10 to 14 years old), totalling 64 students, from a school in the state of São Paulo, Brazil. There were students of the same grade in each group taking a pre-test, a class and a post-test dated a week apart, based on Brousseau (1997). These 3 phases were conducted by the same researcher. The pre-test results highlighted no difference in the answers' standard among the grades for all students. They presented the restricted meaning of the investigated relations. This proves that the existent difficulties disregard the grade. Furthermore, a single class could improve the students' knowledge. For all instances, the values for  $t_{crit}$  were regarded highly significant. This means that there actually was a statistical shift in the students standard answer in favor of a better comprehension of the broader meaning of the relations under study. This poster will present the pre and post test data organized in tables for each group, including the statistical analysis for discussion and reporting some debates developed in the aforementioned class.

### REFERENCES

- Brousseau, G. 1997. "Theory of Didactical Situations in Mathematics". Bodmin Cornwall: Great Britain. Kluwer Publishers.
- Igliori, S.; Maranhão, C.; Sentelhas, S. 2000. "The meaning of terms concerning the time ordering for first grade students: the influence of cultural background". Proceedings of the 24<sup>th</sup> conference of the International Group for the Psychology of Mathematics Education – PME. Hiroshima. Nishiki Print Co. vol. 3. pp.3.71 – 3.77.