

WHAT IS GEOMETRY FOR FRENCH PRESERVICE ELEMENTARY SCHOOLTEACHERS ?

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This communication describes the first results of an ongoing research about preservice elementary schoolteachers in French IUFM (Academic Institute for Teachers' Training). Concerning most of these students, trainers agree on their knowledge in geometry being far from sufficient for future teachers. This can be attributed partly to their previous curriculum: even if they all have spent at least three years at university, many did not attend scientific courses ; however, all were secondary students, and as such had geometry courses until the age of 15-16.

Our theoretical frame, based on our previous researches [Parzysz 1991], distinguishes, among others, two geometrical paradigms which seem relevant to account for our students' relationship with geometry : roughly speaking, the first one (G1) deals with physical objects and perceptive proofs, and the second one (G2) deals with theoretical objects and deductive proofs (or, rather, 'informal deductive', according to Godino & Recio [Godino & Recio 1997 p. 317]).

In order to find suitable means to improve our students' training, we started with an investigation into their beliefs, through a questionnaire (N >700). A major aim of this part of our study was to get an insight into their knowledge in elementary geometry (especially about construction techniques) and more precisely about how they connect a construction (G1) to the underlying geometrical properties (G2). We also wanted to know whether –and how- they can use their geometrical knowledge (G2) to overcome a material difficulty (G1), in the present case, material constraints preventing them from using a routine construction technique.

The analysis of the results through various statistical techniques (among which implicative analysis) allowed us to find that, even if our students have a good knowledge of elementary geometrical construction techniques, many of them cannot relate these techniques to the corresponding geometrical properties. Moreover, the study of the techniques used by the best-performing students show that these techniques have more 'degrees of freedom' and, as such, can be adapted more easily, when necessary, to overcome possible constraints.

REFERENCES

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