

# THE EVOLUTION OF SECONDARY SCHOOL MOZAMBICAN TEACHERS' KNOWLEDGE ABOUT THE $\epsilon$ - $\delta$ DEFINITION OF LIMITS OF FUNCTIONS

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This paper presents preliminary results of a research that aims to investigate how five high school mathematics teachers' knowledge of a mathematical concept evolve through their participation in a research group.

Building on Chevallard's anthropological approach (Chevallard, 1992), the participating teachers were put in contact with the limit concept through a new institution (the research group) which institutional relation to this concept was different from the relation of other Mozambican institutions where they had met it before (Secondary School, University). As a consequence, their personal relation to limits was expected to evolve.

The results presented here come from data gathered during two interviews, one at the beginning of their own research and one six months later, and a seminar dedicated to discussing the  $\epsilon$ - $\delta$  definition and held before the second interview. The interviews and the seminar were audiotaped and transcribed.

The analysis of the data shows that, in the beginning of the research, the five teachers did not understand the  $\epsilon$ - $\delta$  definition. They memorized it at school, but never used it in practice. The discussion during the seminar allowed them to reflect about this definition and identify critical points that make it difficult to understand. This reflection was especially challenging for one of the teachers, who discovered that he did not explain the definition properly to his students, reversing the order of  $\epsilon$  and  $\delta$  when doing a graphical representation.

As a consequence of the evolution of their personal relation to the definition, the two experienced teachers began questioning the institutional relation of Mozambican secondary school with this concept: is it worth teaching this definition to secondary school students, knowing that even teachers do not understand it?

## References:

Chevallard Y. (1992). Fundamental concepts in didactics: perspectives provided by an anthropological approach, *Recherches en Didactique des Mathématiques Selected Papers*, 131-167. Grenoble: La Pensée Sauvage.