

TRANSLATING BETWEEN REPRESENTATIONS OF FUNCTIONS

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This poster presents some results of Project AMECC (Learning in Mathematics: A study on the construction of concepts¹), focused on the topic of functions taught in the 10th grade. This study intended to characterize the concept of function and of graph of function developed by pupils in a situation of formal learning. More specifically we intended:

- to identify the nature and the use of pupils' own conceptual models
- to understand how these models are changed through education.

The methodology, of qualitative nature, was based on semi-structured interviews of 6 pupils at 3 different moments: before the beginning of the formal study of the topic, immediately after this study, and about 3 months later.

The results presented are centred on the performance of pupils in the accomplishment of two tasks that involved the translation between different representations of the concept of function, namely, a two-way translation between a written representation of a real-life situation and a graphical representation. This type of translation posed some difficulties to the pupils who engaged in the tasks using their intuitive knowledge and who gave less relevance to the variables involved and to the functional relationship among them. Some graphics constructed by the pupils showing these types of difficulties and usually related to special kinds of pictorial representations will be shown. Although in general accordance to previous works, (Janvier, Dreyfus, Kaput, Vinner), some variations will be presented.

¹ AMECC (Learning in Mathematics: A study on the construction of concepts) — JNICT-PCSH/C/CED/571/93; IIE-PI/12/93