

CHARACTERISING PRE-SERVICE PRIMARY TEACHERS' DISCURSIVE ACTIVITY WHEN DEFINING

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An essential part of learning mathematics is learning definitions, but many studies report that students sometimes ignore the formal definitions or use them inadequately (Tabach & Nachlieli, 2015). However, there are fewer studies on how pre-service primary teachers (PPTs) propose definitions or choose one when several are available.

In this work, our aim was to study how PPTs do so through the lens of the commognitive framework (Sfard, 2021). This framework considers mathematics as a particular type of discourse and learning as a change in that discourse. It also distinguishes between object-level and meta-level learning. Meta-level learning is possible as the resolution of commognitive conflicts, which often occur when the participants' discourses are governed by different meta-rules. Therefore, our research questions were: (1) which meta-rules governed the discourse of PPTs when defining or choosing a definition? (2) did the existence of different meta-rules always lead to the existence of a commognitive conflict?

The participants were 45 PPTs organised into 12 groups of 3-4 students (G1 to G12). Each group had a worksheet with nine questions about defining geometric solids. They had to write down their answers and their conversations were recorded and transcribed. We later identified and categorised their meta-rules and the possible commognitive conflicts that appeared. This qualitative study shows that PPTs employed a variety of meta-rules. For instance, the PPTs of G7 used two different ones when defining the solids, which led to a commognitive conflict. On the other hand, the PPTs of G2 used two different meta-rules when choosing a definition, but a commognitive conflict could not be inferred because their discourses seemed commensurable. More research is needed to determine how to help PPTs to learn how to define and choose definitions.

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References

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