

PROSPECTIVE PRIMARY TEACHERS' ABILITY TO GENERALISE AND KNOWLEDGE OF GENERALISING PROCESS

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To succeed in mathematics, students must be able to reason mathematically in a fluent way. To help students to develop this ability, teachers need to develop their own mathematical reasoning, as well as their knowledge about reasoning. The generalizing process is a central mathematical reasoning process and it consists of inferring statements about a set of objects from the analysis of a subset of these objects (Jeannotte & Kieran, 2017). Although there are many studies that address the ability to generalize in prospective teachers, there is a lack of evidence about their knowledge of this reasoning process. In this communication, we aim to discuss both the ability and the knowledge of generalizing process among prospective primary teachers.

A teacher education experiment with 31 prospective primary teachers was implemented as the 1st cycle of a Design-Based Research project. The experiment was developed over six lessons, one per week, each lasting two hours and 30 min and focused on mathematical reasoning addressing specialised mathematics knowledge for teaching. The data were collected through participant observation of the lessons using audio and video recordings, and documents collection.

Prospective teachers were able to generalize, having the exemplifying process as support. There were no difficulties in this process, but there was a concern about the meaning of the variables expressed symbolically. Our results also show six levels of knowledge of generalizing process (confusing it with the justifying process; taking on the meaning of the term in everyday language; recognizing it though considering only 'correct' processes; fitting the definition presented, (i) but explicating it only through illustrative example(s), (ii) and enunciating its properties, and (iii) including its relationship with the justifying process). Moreover, the relationship between the ability and the knowledge of generalizing process needs further research.

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References

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