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The Impact of a Cognitive Acceleration Program on Prospective Teachers' Reasoning Skills

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Abstract : Cognitive Acceleration in Mathematics Education (CAME) programmes have been used successfully for promoting the development of thinking skills in school students for the last 30 years. Given that the approach has had a tremendous impact on the thinking capabilities of participating students, this study explored the experience of using the programme with prospective primary teachers in Chile. Therefore, this study not only looked at the experience of prospective primary teachers during the CAME course as learners, but also examined how they perceived the approach from their perspective as future teachers, as well as how they could transfer the teaching strategies they observed to their future classrooms. Given the complexity of the phenomenon under study, this research used a mixed methods approach. For this reason, the impact that the CAME course had on prospective teachers' thinking skills was not only approached by using a test that assessed the participants' improvements in these skills, but their learning and teaching experiences were also recorded through qualitative research tools (learning journals, interviews and field notes). The main findings indicate that, at the end of the CAME course, prospective teachers not only demonstrated higher thinking levels, but also showed positive attitudinal changes towards teaching and learning in general, and towards mathematics in particular. The participants also had increased confidence in their ability to teach mathematics and to promote thinking skills in their students. In terms of the CAME methodology, prospective teachers not only found it novel and motivating, but also commented that dealing with the thinking skills topic during a university course was both unusual and very important for their professional development. This study also showed that, at the end of the CAME course, prospective teachers felt they had developed strategies that could be used in their classrooms in the future. In this context, the relevance of the study is not only that it described the impact and the positive results of the first experience of using a CAME approach with prospective teachers, but also that some of the conclusions have significant implications for the teaching of thinking skills and the training of primary school teachers.

Keywords : cognitive acceleration, formal reasoning, prospective teachers, initial teacher training
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