

Evolution of pre-service primary teachers' attitudes toward mathematics teaching

Monica Panero, Luciana Castelli, Silvia Sbaragli

Dipartimento formazione e apprendimento, SUPSI (Locarno)

monica.panero@supsi.ch, luciana.castelli@supsi.ch, silvia.sbaragli@supsi.ch

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Theme 1: Knowledge and the Individual

Aim and research question

This contribution presents a 3-year longitudinal study that started in September 2017 and involved all 72 students attending the first year of Bachelor in the primary school teaching curriculum, at the SUPSI's Dipartimento formazione e apprendimento in Locarno. The study aimed at investigating the students' attitude towards mathematics and its teaching. Specifically, in this communication, our question is: how does students' attitude toward mathematics teaching evolve, also in relation to specific training interventions?

Theoretical and methodological aspects

According to Di Martino and Zan's theoretical model (2011), we investigated students' attitude by collecting information on three different dimensions: emotional disposition, self-efficacy and students' beliefs about the discipline. We collected data through three on-line questionnaires that we administered in November 2017, January 2019 and May 2019. The questionnaires included scales for measuring the above-mentioned constructs (e.g., Zuya et al., 2016, for measuring self-efficacy in teaching mathematics) and open questions regarding emotions and beliefs. Quantitative data have been integrated with qualitative data collected through group discussions with students, that focused on disciplinary, didactic and metacognitive aspects, aiming at stimulating students' reflection on their attitudes toward mathematics and its teaching.

Results

Descriptive statistical analysis revealed that, at the beginning of teacher education training, and in contrast with the emotions reported toward mathematics, most of the emotions toward mathematics teaching were either positive or positive and negative at the same time (for instance: joy and anxiety) (Castelli et al., 2019). At the end of the second year of teacher training, the frequency of positive emotions reported was higher and the remaining negative emotions were physiologically activating emotions (Pekrun et al., 2007; Raccanello et al., 2014), which might potentially have a positive impact on student motivation (Rowe & Fitness, 2018). Qualitative data, along with argumentations provided by students in the open questions, revealed that this change in emotions has been accompanied by a progressively more open and dynamic vision of mathematics, that students have developed through teacher training. As for self-efficacy, students referred to their experience during pre-service internship, consisting in 1-day per week for two years, plus 3 weeks

of full-time teaching every semester. After two years of teacher training, students (n=43) reported high mean levels in self-efficacy in mathematics teaching (M=4.07, sd=.50, min 2.44 max 5.00). We will conduct semi-structured interviews with a group of students to gain insight into their interpretation of the items regarding self-efficacy, and thus to construct qualitative lenses for reading our results regarding self-efficacy in mathematics teaching.

Link with the theme of the conference

This contribution will provide insights to the study of how the different dimensions of the attitude towards teaching in mathematics, resulting from the theoretical and practical training of future primary school teachers, are developed and articulated.

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