

Profiles and beliefs of mathematics teacher educators on preservice teacher education: Development of an instrument

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Introduction

The study of mathematics teacher educators (MTE) as a critical agent in teacher education processes has been growing steadily in recent years. However, the diversity of profiles identified in the literature calls for a deeper exploration of MTE beliefs about the content of preservice teacher education. The discussions in the TWG27 also reflects this. In recent years there have been initiatives to characterise educators' belief systems about various aspects of initial teacher education (e.g. Cox et al., 2021), guiding how to describe their professional development and academic trajectories, as well as their needs and the challenges they face. However, these studies are generic and do not address the specific practices of MTE. Therefore, the aim is to understand whether there are differences in the belief system of MTEs about the content of preservice teacher education according to their profile by their trajectories and needs.

Conceptual perspective

To understand the relationships between the educational trajectories and experiences of MTEs and their beliefs, we defined two key dimensions: the educator's profile and beliefs. To address a general characterisation of the MTE, we included their perceptions of some key characteristics of the centres and programmes in which they work. Recent studies have been considered (Cox et al., 2021) but during the design, we adapted several questions to the context of the performance of mathematics teacher educators. On the other hand, to find out the MTE's beliefs about the content of initial teacher education, we considered the contributions of Ponte (2011) concerning the structure of initial teacher education, considering the MTE beliefs about professional knowledge, professional skills and professional identity developed in initial education programmes. In addition, to investigate the MTE's beliefs about professional knowledge to construct in initial programmes, we have used the foundations of the MTSK model (Carrillo et al., 2018).

Instrument design

Considering the above dimensions, a questionnaire has been developed consisting of 27 items. Table 1 shows the focus of enquiry for each item. Regarding its design process, the questionnaire was developed collaboratively during the year 2022 in the meetings of the MTSK Network. In January 2023, a validation process was carried out by expert judges (5 Ibero-American reviewers). Each of them analysed the instrument according to clarity, pertinence, and relevance criteria for each item, obtaining an average percentage of agreement of 86.1%, 94.8% and 93.9%, respectively.

Table 1: Questionnaire dimensions and focus of enquiry

Dimension 1: MTE Profile	Dimension 2: MTE Beliefs
<p>General characterisation: Gender, Age, Institution.</p> <p>Training and professional experience: Level of training, Years of experience, Type of teaching experience, Entry milestone for initial teacher education, Participation in professional development.</p> <p>Characteristics of education centres and programmes: Educational level, Year of the programme, Type of subject, Formative approach, Learning activities, Assessment activities, Collaborative work, Institutional assessment.</p>	<p>Beliefs about the content of preservice teacher education: Beliefs about the objectives in initial teacher education, Beliefs about the structure of the content in initial teacher education, Beliefs about professional knowledge in initial teacher education by MTSK model, Beliefs about strategies for learning to teach in initial teacher training.</p> <p>Perceptions of professional learning needs: Contexts of professional learning and acquired knowledge, Self-assessment of professional knowledge, Perception of preparation for teacher training.</p>

Regarding the sample, we considered MTEs working in universities where a member of the network is working, either in disciplinary, didactic or practicum courses related to the teaching and learning of mathematics. Subsequently, the questionnaire would be applied in other universities or institutions that train mathematics teachers.

Although data collection and analysis have yet to be carried out, it is expected that the results of this research will contribute to clarifying the different profiles of MTEs and the possible relationships with their belief systems. These results can be used in the trainer's professional development programs in their educational contexts.

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