

## EXPLORING MATHEMATICS TEACHER EDUCATORS' AVENUES FOR PROFESSIONAL GROWTH: A REVIEW OF THE RESEARCH LITERATURE

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There is a growing consensus that mathematics teacher educators (MTEs) need a robust knowledge base in order to prepare prospective teachers (e.g., Chavout, 2008; 2009). However, research has shown that the majority of MTEs are not provided the support or training necessary to develop this knowledge (Masingila et al., 2012). Professional organizations have called for improved preparation of MTEs (AMTE, 2017; CBMS, 2012), but the ways in which *MTEs develop Mathematical Knowledge for Teaching Teachers (MKTT)* it is not yet understood.

For the past three years, our research group has been studying the literature on MKTT (Castro Superfine et al., in preparation; Olanoff et al., 2018; Welder et al., 2017). As part of this work, we have conducted an extensive literature search of research on the knowledge MTEs use in their work with prospective and practicing teachers and how this knowledge is developed. Thus far, we have organized the extant literature into five overall themes capturing the ways in which MTEs have developed MKTT. In this poster, we will offer the five themes, summarize pertinent research for each, and discuss implications this work has on the preparation and professional development of MTEs. Below we offer a sampling of our findings.

1. ***Learning through reflective self-study.*** Many MTEs who are also researchers have conducted reflective self-studies of their teacher education practices (e.g. Alderton, 2008; Allen et al., 2018; Chavout, 2009; Marin, 2014; Muir et al., 2017; Taylan & da Ponte, 2016). These studies vary (for example, individual vs. collaborative efforts), including whether or not the researchers identified professional growth as a finding of their self-study.
2. ***Learning through communities of practice.*** Some groups of MTEs (e.g., Applegate et al., 2020; Jaworski, 2003; Olanoff et al., in press) have formed communities of practice to improve the MKTT of all of the group members and/or initiate novice MTEs into the field.
3. ***Learning through graduate preparation and/or professional development activities.*** Few studies describe how MTEs have taken graduate-level courses (Flores et al., 2017), or participated in formal professional development opportunities, as part of their own learning (Hauk et al., 2017; Castro Superfine & Li, 2014). Flores and colleagues (2017) suggest that taking graduate courses or participating in other forms of professional development can provide meaningful opportunities for MTEs to reflect on and build upon their own knowledge.
4. ***Learning through research.*** Some authors (e.g., Chauvot, 2008, 2009; Chen et al., 2008) suggest that MTEs develop MKTT by being *Mathematics Teacher Educators/Researchers*. This work can involve studying one's own practices of teaching teachers as well as studying the literature involving the teaching and learning of MKT.
5. ***Learning through doing the work of teaching teachers.*** Ball and her colleagues (2008) suggest that MKT is the knowledge required to perform the mathematical tasks of teaching. Building on this, some researchers (e.g., Zopf, 2010) define MKTT as the knowledge required to perform the mathematical tasks of teaching teachers. Zopf and others, such as Jankvist and colleagues (2019) suggest that MTEs develop MKTT on the job by performing the work of teaching teachers.

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