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Professionalization processes of facilitators in mathematics teachers' professional development programs

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Abstract

There is a general consensus on the importance of mathematics teachers' life-long learning. Common learning frames are professional development (PD) programs led by facilitators, who are often practicing or former teachers themselves. Unlike the ample research on teachers and teaching, the body of research on facilitators and facilitation is still relatively small. In particular, there is limited research on the ways by which facilitators are prepared for their role and how they professionalize once entering the job. The aim of this dissertation is to contribute to the characterization and understanding of how mathematics teachers become competent PD facilitators. To do so, I investigated novice facilitators' professionalization processes by:

A. Unpacking the evolution of novice facilitators' individual decision-making; and
B. Identifying cross-cutting issues of facilitation.

In light of these research goals, the following research questions were posed:

RQ1. What characterizes novice facilitators' decision-making?

RQ2. How does facilitators' decision-making change over the first year of facilitation?

RQ3. What cross-cutting issues of facilitation emerge? What kind of decisions do facilitators make when facing these issues?

This study was set within the context of VIDEO-LM (Viewing, Investigating and Discussing Environments of Learning Mathematics; Karsenty & Arcavi, 2017). This PD program was designed to enhance secondary mathematics teachers' Mathematical Knowledge for Teaching (MKT; Ball et al., 2008) and reflective skills, through peer discussions on authentic videotaped lessons of unfamiliar teachers. Recognizing the need for upscaling, the VIDEO-LM team developed a program for the preparation and ongoing support of new facilitators, which gave rise to this study.

This dissertation consists of a multiple-case study that followed seven novice facilitators, all of them are practicing mathematics teachers. A large corpus of qualitative data was gathered over two years to ensure rich descriptions of phenomena. Facilitators' decision-making was analyzed using the ROGI framework (Karsenty, et al., 2021) comprising *Resources*, *Orientations*, *Goals*, (ROG, Schoenfeld, 2010), and *Identity*, as defined by Gee (2000). The findings show that novice facilitators' decisions at the beginning of the year were characterized by hesitation, inflexibility, conflicts between identities and commitments, and gaps between declared and enacted goals. However, the decisions made by facilitators towards the end of their first year of practice were characterized by a growing ability to settle identity conflicts and lessen discrepancies between goals. All of the facilitators changed their decision-making to some extent with respect to certain aspects of facilitation. Their

processes of change diverged and sometimes went in opposite directions. Nevertheless, in most cases, these processes resembled in the sense that the facilitators' internal tensions with respect to their practice were gradually resolved. In addition, the facilitators' professionalization processes were found to be closely linked to their individual backgrounds and goals. In particular, the facilitators' experiences and orientations as *teachers* were crucial to their decision-making while facilitating. One of the major findings emerging from this study is that the knowledge and practices needed for facilitation were not necessarily an *expansion* of mathematics teachers' knowledge and practices, but rather a *modification* that included the adoption, adaptation, and retraction of teaching practices and knowledge.

In terms of cross-cutting issues of facilitation, four main issues were identified: *Managing a discussion*; *Balancing mathematics and mathematics teaching*; *Enacting norms*; and *Sharing the facilitator's opinion*. For each issue, a space of possible decisions was described and analyzed. The analysis showed that similar decisions, enacted by different facilitators, could result from different and even contradictory reasons. The decisions are made while the facilitators navigate between their resources, orientations, goals, and identities (i.e., their ROGI), the goals of the program, and the emergent needs of the PD participants. This analysis also served to shed light on differences in how the facilitators implemented the PD, which were examined under a fifth issue of facilitation, *Refining the PD goals*. I found that although the facilitators sometimes used the program's main principles differently than intended, all of them adhered to the project's credo. I suggest that adaptations of the PD are not only inevitable but may also enhance the PD's sustainability and viability.

The key implications derived from this research is that facilitator educators should be aware of novice facilitators' multifaceted identities and the challenges they pose; and that the design of PD programs should acknowledge the diversity in facilitators' practices. In terms of theory, this dissertation provides a model to capture the dynamics of facilitators' professionalization processes by looking at individual cases as well as at cross-cutting issues. Overall, the results shed light on facilitation as an evolving profession that still needs to find its own distinctiveness within allied disciplines, in particular, compared to teaching. The study contributes to a better understanding of the idiosyncratic complexities involved in the facilitation of PD for mathematics teachers, and as such can inform researchers, program developers, and policymakers in mathematics education.