Decentering and Interconnecting as Key Practices for Change Agency Leadership in Teaching-focused Professional Development for College Mathematics Instructors

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Research in undergraduate mathematics education (RUME) continues to identify features of high quality learning opportunities for students and explore what instructors need to know and do to create those opportunities. RUME also has illustrated features of effective teaching-focused professional development (TPD) for college instructors, characterized the complexity of the system in which TPD occurs, and examined the practices used by providers of TPD in seminars about teaching (Akin et al., 2023; Deshler, et al., 2015; Smith et al., 2021; Yee et al., 2023). Additionally, recent work has explored how development of two skills, decentering and interconnecting, may support professional growth of instructors as future change agents (Hauk & Speer, 2023a,b). *Decentering* is, at its most basic, the act of seeing from someone else's point of view (Teucher et al., 2016). While decentering involves perspective-taking, *interconnecting* is meta-awareness linking across perspectives and contexts and is key in developing and nurturing coalitions, an essential component of local and systemic change (Kotter, 2012; Manville, 2016).

What does it look like if we leverage what is known from the literature to consider the questions: What do providers of TPD need to know and do to create desired types of learning opportunities (for instructors, about teaching) and, more broadly, what are the features of high quality leadership development *for providers to support their growth into facilitators* (who teach about *teaching about teaching*) and *stewards of the discipline* (Bass, 2006)? In addition to supporting faculty in their work to be effective providers of TPD for novice instructors (middle layer of Figure 1) leadership-focused development experiences (outer layers in Figure 1) can scaffold providers to take on roles as stewards and agents for change in the realm of TPD.

In this poster (Hauk & Speer, 2024), we illustrate how stewardship, a particular kind of leadership in the complex system of mathematics instructional development, requires decentering and interconnecting. This model for professional growth of faculty agents for change expands on Figure 1. Earlier work described how instructional practices used by TPD providers (for graduate students) could be beneficial both for learning high-powered teaching approaches for undergraduate mathematics and for building a foundation for future change-agent work. Here we extend the model, with analogous arguments for facilitators and stewards. Ensuring that faculty have capacity as facilitators and as stewards is essential. Such faculty will shape efforts over time, informed by developments in RUME and in response to other developments in the discipline.

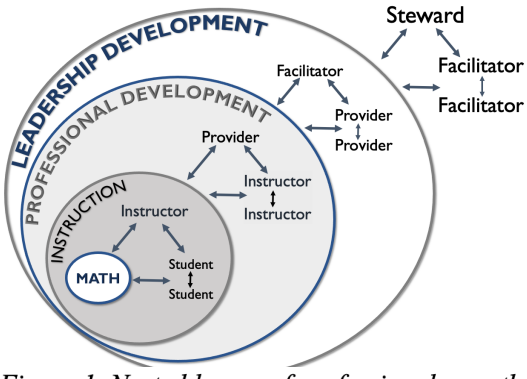

Figure 1. Nested layers of professional growth

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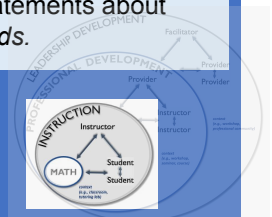
MAA CoMInDS

Building capacity to steward the development of the next generation of college instructors.

Play Mad Libs™ with the poster
The text to the right describes acts of *decentering* and *interconnecting* done by instructors of mathematics. Use the words on green, blue, and yellow to transform these into statements about *providers, facilitators* and *stewards.*

Glossary

Decentering*:* the act of seeing from someone else's point of view [1,2].



Interconnecting*:* meta-awareness linking across perspectives and contexts response to other developments in the discipline [1,3,4].

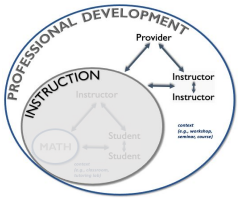
Student: learner of mathematics

Instructor: person responsible for instruction in mathematics courses

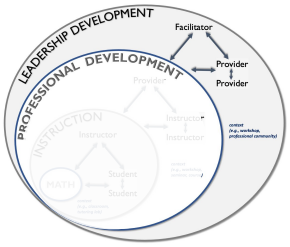
Provider: one who offers teaching-focused professional development to (often novice) instructors

Facilitator: one who offers professional learning for (sometimes novice) Providers.

Steward: one who shapes efforts over time to advance teaching-focused professional learning.



instructor
instructors
TPD
math/pedagogically



provider
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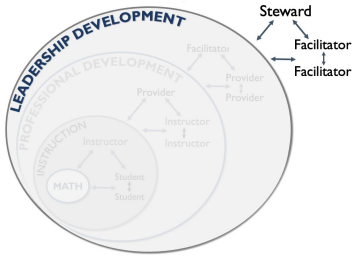
facilitation
math/pedagogically



colleague
colleagues
stewardship
professional change

Decentering

- learning to elicit student thinking
- learning how to shape instruction based on student thinking
- scaffolding students to contribute to mathematically dense student-to-student conversations
- being an expert participant rather than sole source of knowledge
- attention to students as (potentially) different from oneself

Interconnecting

- noticing how student conceptions may support or constrain how target learning progresses.
- knowing conceptions as well as the dynamics of communicating about them in a multi-contributor conversation
- selecting formats (e.g., group or pre-meeting activity) for problem-solving about target learning.
- connect across and prioritize instructional / mathematical and contextual factors, to decide what is professionally useful for students.

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