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Undoing Template Thinking: Preparing Students for First-Year Mathematics

In this talk, I will discuss the design, implementation, and preliminary outcomes of the Mathematics Background Tutorials (MBT) project, an intervention developed to support incoming university students entering first-year mathematics courses. The MBT Workshop was conceived in response to widely observed gaps in foundational mathematical skills among transition-year students.

The program consisted of two key components: a four-day intensive refresher tutorial offered before the fall semester, and a professional development workshop for tutorial leaders (TLs). Drawing on principles of active learning, the MBT sessions engaged students in collaborative problem-solving and peer-led discussions. TLs received structured pedagogical training focused on helping students move beyond "template thinking," with the aim of fostering deeper conceptual understanding and a stronger sense of mathematical agency.

This presentation will highlight the pedagogical framework, the curriculum design process, and the reflections of tutorial leaders. I will report on preliminary findings from the TL and student debrief sessions, as well as the test-item analysis conducted following the tutorials.

Initial results suggest that the MBT Workshop provides a scalable, research-informed model for enhancing mathematical preparedness and promoting student agency at the beginning of the transition year. Plans for future implementation and evaluation will also be discussed.