Mathematics Placement, Courses, and Use of Local Data in the STEM Mathematics Pathway in Predominately Black Institutions

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The present study draws from data collected in a national survey of community college mathematics department chairs, focusing on three factors that collectively affect students as they transition into the STEM mathematics pathway: mathematics placement, STEM mathematics courses, and the use of local data. Data is disaggregated by quintiles based on the percentage of African American student enrollment, and the analysis is supplemented by explicating how mathematics placement, STEM mathematics courses, and use of local data interacted in practice in a Predominately Black Institution selected for case study. Findings reflect that community colleges are taking steps towards increasing access and completion for STEM-interested students by attending to improving mathematics placement and developmental courses. However, more attention needs to be placed on using disaggregated student-level data to identify the impact of these efforts on African American students.

Helen Burn is an instructor in the Department of Mathematics and director of the Curriculum Research Group at Highline College, where she has served as both chair of the Pure and Applied Sciences Division and the mathematics department coordinator. Her research focuses on community college mathematics curriculum, including reform of precollege mathematics and college algebra, and supporting adjunct faculty and the partner disciplines. She is currently a coprincipal investigator on the NSF-funded grant, Transitioning Learners to Calculus in Community Colleges. Helen received the 2014 Washington State Two-Year College Mathematics Education Reform Award for her decade-long work in reforming precollege mathematics within her department and state. She holds a BS from The Evergreen State College, an MS in mathematics from Western Washington University, and a PhD in higher education from the University of Michigan Center for the Study of Higher and Post-Secondary Education.

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Vilma Mesa is professor of education and mathematics at the University of Michigan. She investigates the role that resources play in developing teaching expertise in undergraduate mathematics, specifically at community colleges and in inquiry-based learning classrooms. She has conducted several analyses of instruction and of textbooks and collaborated in evaluation projects on the impact of innovative mathematics teaching practices for students in science, technology, engineering, and mathematics. She has collaborated with several community college faculty on numerous federally-funded projects. She is currently serving as associate editor for Educational Studies in Mathematics.

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