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*Designing a Developmental Mathematics Course to Support Productive Struggle*

Productive struggle can enhance the developmental mathematics classroom. Developmental mathematics is a sequence of required courses for students needing to build their knowledge in mathematics (Boylan, 1999). Calls have been made to reform developmental mathematics courses as over half of U.S. (Fong et al., 2015) and over a third of Canadian students (CSAP/PREC, 2015) fail to move on to their college programs and subsequent careers. Implanted in this "graveyard of dreams and aspirations" (Merseeth, 2011, p.32) is instruction that over-relies on content-focused knowledge transmission delivery models (Bailey et al., 2015; Grubb et al., 2011), with students only able to call upon memorized rules and procedures (Stigler et al., 2010) while lacking belief that they can succeed in math (Zientek et al., 2019). Productive struggle provides an answer as students are supported in their efforts to understand mathematics that are not immediately apparent (Hiebert and Grouws, 2007; Warshauer, 2015). Supporting productive struggle requires instructors to help students consider underlying mathematical principles (Lynch et al., 2018) through collaborative tasks (Murawska, 2018) to guide and scaffold students' thinking through confusion and errors (NCTM, 2014). In doing so, instructors are required to move away from "remedial pedagogy" (Grubb, 2013, p.13), where teachers emphasize correct answers, rules, and procedures through drill and practice. Well-documented is the impact productive struggle may have on K-12 classrooms, but few (e.g., Bickerstaff and Edgecombe, 2019; Edwards and Beattie, 2016) have extended the work into developmental mathematics.