

Implementing and Examining an Inquiry-Based Mathematics Education Approach in a First Year Mathematics Module

Maria Meehan

In their 2017 article, Laursen and Rasmussen (2017), provide an overview of two inquiry-based approaches enacted and studied in third-level mathematics teaching - inquiry-oriented instruction, and inquiry-based learning. The authors examine the practices that are core to both approaches, and propose that they be discussed jointly under the term “Inquiry-Based Mathematics Education” (IBME). They describe what they call the four foundational pillars of IBME: “students engage deeply with coherent and meaningful mathematical tasks; students collaboratively process mathematical ideas; instructors inquire into student thinking; instructors foster equity in their design and facilitation choices” (p. 138). As they note, the first two pillars relate to the student, while the remaining two are the domain of the instructor. Finally, they highlight four research agendas that researchers and practitioners of IBME may wish to pursue.

In this project we will examine a first year module where an IBME approach is taken. Specifically we will examine tutorials where students will be asked to work collaboratively on specially designed tasks, and undergraduate students will facilitate as Peer-Assisted Tutors (PATs). The PATs will be tasked with noticing and enquiring into student thinking, and responding to it. While there are a number of a research areas that interest us, one is that we would like to examine the nature of student collaboration in tutorials, and its impact on further collaboration inside and outside the classroom. Furthermore, we are interested in how/whether this impacts a student’s identity as a learner of mathematics, and has the potential to impact the recruitment and retainment of a more diverse student body in mathematics.

Laursen, S. L., & Rasmussen, C. (2017). I on the prize: Inquiry approaches in undergraduate mathematics. *International Journal of Research in Undergraduate Mathematics Education*, 5, 129-146. <https://doi.org/10.1007/s40753-019-00085-6>