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Symposium: Mathematical Language in Transitions – From Secondary to Tertiary

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Learning mathematics in English-speaking Bachelor programs – what challenges does the “new” language create during the secondary-tertiary transition?

In English-speaking mathematics bachelor programs, the already challenging secondary-tertiary transition (STT) can be exacerbated by linguistic barriers of the unfamiliar language of instruction (LoI), English. These barriers are faced by both students from abroad and by local students. The barriers are enforced by the challenges of moving from the informal language encountered in secondary education towards the formal and rigorous language of tertiary mathematics. This study explores these linguistic barriers in the STT in mathematics education, focusing on the challenges students face and lecturers' approaches to these challenges when adapting to a new linguistic and academic environment.

We will present insights from interviews with 15 first-year mathematics students, where they report on the challenges of adjusting to the new LoI in their first semester. Students report that they need to “translate mathematical concepts in their heads” before being able to follow the lecturers during the courses, solve exercises, or ask on-the-spot questions. We will contrast this with the lecturers' views, who rarely recognize language of teaching as a problem during STT, likely due to their experience and familiarity with the English-taught environment and formal mathematical language. Taken together, these “invisible” linguistic barriers are problematic for students' effective participation in the university mathematics community, as they make students feel less successful.

We will argue that students who actively participate in academic communities with peers, lecturers, and instructors are more likely to have a smoother trajectory in overcoming the linguistic barrier, and that this active participation can also create opportunities for language use and -reflection of the new LoI English. We will also discuss the opportunities and challenges of implementing language-responsive mathematics teaching in this tertiary context, within the particularities of teaching Mathematics in a foreign language.