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Introducing corpus-based methods into a large-scale technical writing program for scientists and engineers

This paper describes the introduction of corpus tools and methods into a large-scale technical writing program for undergraduate and graduate university students of science and engineering. This novel approach is shown to greatly improve students' understanding of discourse structure, increase their productive vocabulary knowledge, and provide them with useful skills that they can apply in writing tasks long after graduation.

The target university in the study operates the largest science and engineering English language program in Japan and possibly the world. Currently, the program serves approximately 6000 undergraduate students, 4000 graduate students, and also many post-doctorate researchers. Starting in 2004, elective courses in undergraduate- and graduate-level technical writing were radically overhauled to meet the growing challenges of students in a globalized society. This led to a rapid increase in the number of students from diverse disciplines and with diverse ability levels, and also an increase in the number of part-time instructors who did not have a background in science and engineering. To deal with the challenges of a more diverse student population and a greater number of non-expert part-time faculty, a decision was made to introduce corpus-based methods into the classroom. This would allow instructors without backgrounds in science and engineering to offer meaningful classes to their students, and more importantly, would give students useful analytical skills that they could apply throughout their professional careers.

In the presentation, I will first explain some of the key design choices that have led to a successful implementation of the new program, including 1) the selection of suitable tools and corpora that can be easily used by both teachers and students inside and outside the classroom, 2) the development of a printed textbook with step-by-step exercises and sample texts, and 3) the introduction of teacher training sessions and teacher feedback systems. Next, I will describe some of the challenges that full-time faculty in the program have faced when coordinating the program and introducing concepts from corpus linguistics to non-expert part-time faculty. Then, I will report on quantitative and qualitative measures of improvement in student writing, before discussing the teacher and student feedback on the program. Finally, I will suggest ways in which the technical writing program can be implemented and subsequently improved at other institutions around the world.