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**Professional development for changing undergraduate mathematics instruction.**

Holton, Derek, Teaching and learning of mathematics at university level. Kluwer, Dordrecht (ISBN 0-7923-7191-7). 113-126 (2001).

This paper discusses a model for professional development used in a new reformed calculus sequence for science, engineering, and mathematics students created for the Institute of Technology, University of Minnesota. This model uses a team approach and different modes of mentoring to provide explicit and implicit professional development for all team members - senior faculty, graduate and undergraduate teaching assistants (TAs), and teaching specialists. We discuss why this model has been effective in having senior faculty use and support changes in pedagogy, including instructional teamwork and student-centred learning, students working cooperatively in small groups, and exploring mathematical ideas using appropriate technologies. We indicate how other members of the instructional team are also encouraged and mentored in using these approaches. A key feature is the development of materials on complex mathematics topics, which can be most effectively taught using these modern approaches. The future implications of this model, including expanded uses of these approaches in more advanced mathematics coursework, are also addressed. Finally, some directions for future research suggested by this model are discussed.

*Classification:* B55