# PROSPECTIVE TEACHERS' DEVELOPMENT IN TEACHING WITH TECHNOLOGY

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*The preparation of teachers who can effectively engage students in meaningful mathematics with technology is a complex task. A cycle of planning-experience-reflection was utilized to for prospective teachers to work with students on a technology-based task. The results of case study analysis with three prospective teachers offer insights into critical aspects of learning to teach mathematics with technology.*

## OVERVIEW

The use of technology in mathematics teacher education should provide opportunities for prospective teachers to move beyond using technology as a tool in their own mathematical learning--which is not sufficient preparation to come to understand how to help students learn mathematics with technology tools (Olive & Leatham, 2000). Prospective teachers need meaningful experiences working directly with students using technology to solve problems. Such experiences can increase their mathematical and technological knowledge, and also help prepare them for the pedagogical challenges of effectively engaging students in technology-based mathematical activities. These experiences, when coupled with opportunities to engage in reflection, can enhance prospective teachers' understanding of the complexity of teaching mathematics with technology. Perturbations occur for prospective teachers as they interact with students and reflect on their own and students' actions. Prospective teachers' development can be enabled or constrained by how they and the students interact with the technology tools.

The study was conducted within the context of a course on Teaching Mathematics With Technology, taught by the researcher. A twice-repeated cycle of planning-experience-reflection was used in this study to engage junior-level prospective teachers working with pairs of eighth grade students as they solved a ratio-related problem using an interactive java applet. Video of the computer, students, and prospective teachers was recorded at a computer station during both problem solving sessions. Results of this study provide evidence that prospective teachers have different views of their role as a facilitator of students while problem solving. They each stayed relatively focused on improving within their role, often critiquing or praising themselves about *their actions* within that role, and interpreting students' understanding filtered through their lens of how successful they acted within their role. They also made pedagogical decisions aligned with their role to use (or not use) representations available in the applet to promote students' mathematical thinking or focus attention on specific aspects of the problem. Details of the cross-case analysis and implications will be shared.

### References

Olive, J. & Leatham, K. (2000). *Using technology as a learning tool is not enough.* Paper presented at the international conference on Technology in Mathematics Education, Auckland, New Zealand.