Cooperative Learning in Mathematics:  
The Effects of Prior Experience  
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Research Apprenticeship Report Abstract  
This study examines some of the factors that influence the effectiveness of cooperative learning of mathematics within small groups. Four preservice elementary teachers taking a sequence of two mathematics courses designed specifically for such students participated in the study. The course covered foundational mathematics through problem solving in cooperative groups. The participants were observed as they worked together in a small group during the first half of the second course. These observations were both in- and out-of-class as they worked together on different aspects of the course. Most in-class observations were audio and video taped for more detailed analysis of process. At the end of the course, the participants were individually interviewed. They were asked to reflect (a) on their prior experience in learning mathematics, of working with others in academic and non-academic activities, and of learning from and with others in such settings, and (b) on their year long experience of learning mathematics within different cooperative groups. They were also asked the extent to which they would use cooperative learning methods when they taught mathematics as well as how they envisioned cooperative groups as influencing their work and continued development as teachers.  

Analysis of both observation and interview data suggest that issues of leadership and interaction were important in the cooperative learning process and that their nature and interpretation differed significantly for different individuals as a result of prior and evolving experiences. Further, while prior experience has a strong and on-going influence on the kind of cooperative learning that occurred within the group, the nature of the task often determined whether there was cooperative learning of mathematics or simply cooperation to successfully accomplish the task. The distinction is important. The interviews also indicate the preservice teachers’ changing conceptions of the nature of mathematics and of who can do mathematics as a result of their year’s experience learning in cooperative groups, and their growing awareness of the complex factors that determine the effectiveness of this method of teaching and learning.