In an experiment conducted at a major state university in Fall Semester, 2009, we compare the effect of incorporating inquiry-based group work sessions versus traditional lecture sessions in a Basic Algebra course in which the primary pedagogy is computer-assisted instruction. Our research hypothesis is that inquiry-based group work sessions differentially benefit students in terms of mathematical self-efficacy, content knowledge, problem-solving, and communications. All students receive the same computer-assisted instruction component. Students are randomly assigned to a treatment (group work or lecture). Measures, including pre- and post-tests, are described. Statistically significant differences have previously been observed in a similar study of multiple sections of a Finite Mathematics course in Fall, 2008. Many pre-service elementary school teachers take this Basic Algebra course, thus making this course a significant component of preparing K-6 teachers. (Received September 22, 2009)