This study examined the effectiveness of instruction based upon a Framework designed to promote deep procedural knowledge, which presumably facilitates recall and aids future learning. The matched-pairs design paired six college algebra instructors according to teaching experience. Students’ SAT / ACT scores established the equivalence of treatment and control groups. Data consisted of classroom observations, homework samples, common hour exams, procedural understanding assessments, and interviews with treatment instructors. An ANCOVA revealed that treatment group students scored significantly higher than control group students on procedural understanding. Moreover, although treatment students were assigned fewer drill questions, there were no significant declines in procedural skill. Overall, students possessing procedural understanding exhibited greater skill, regardless of instructional approach. Interviews revealed implementation issues surrounding Framework-based instruction. (Received September 04, 2007)