In an effort to improve the quality of instruction and increase undergraduate student achievement in its courses taught by graduate teaching assistants (GTAs), the CU-Denver’s Department of Mathematical and Statistical Sciences with the support of an NSF-DUE grant (#1539602 and supplement #1620997) implemented a program that paired new GTAs with experienced peer mentors in the Fall of 2015. The peer mentors provided support and guidance as the GTAs transitioned into teaching roles. For two years, journal data was collected from the peer mentors and analyzed to examine the nuances of the peer mentoring experience. Conclusions drawn from the data helped describe how serving as a peer mentor impacted the classroom practice, attitudes and perceptions of experienced GTAs. Peer mentors described important aspects of pedagogy that impacted their mentees, such as the development of a positive classroom culture and ensuring an equitable classroom for all students, as well as personally significant topics, such as an awareness of their own role as a mentor and as an instructor. (Received September 26, 2017)