Chemistry graduate students are a critical part of the scientific mission, and they contribute substantially to undergraduate education. However, their professional development as scholars and educators is understudied. An area of our research program is devoted to understanding what contributes to chemistry graduate students' professional growth. In this session, I will present a study of the role of research advisors in graduate student development in which we found that research advisors employ a variety of strategies to promote their scholarly autonomy. I will also present a series of studies on graduate students' knowledge and beliefs for teaching chemistry. These studies show that graduate students draw on their experience as students and are influenced by the constraints of the context they learn to teach.