In this talk we explore the teaching of mathematics through the students' eyes (Miller, 2010), a framework to guide teachers to become critically reflective. We present two research projects where we acknowledge our students’ perceptions and experiences as tools for teaching mathematics. The first project examines the experience of a group of 15 teachers from rural schools in Colombia when they walk to their students' communities to learn about their life. The second project examines the perspectives of a group of 200 calculus students in a US midwestern research institution and their perspectives on improving the calculus teaching and learning experience.