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Zackery Kevin Reed* (reedzac@oregonstate.edu). *Student Generalizations from Finite to Infinite Dimensional Normed Spaces*. Preliminary report.

I recently conducted two teaching experiments investigating student generalization in real analysis settings, which focused on student reasoning about metric spaces. Normed Linear Spaces account for the majority of undergraduate students' initial glimpses at metric spaces. Such spaces are particularly interesting because students have the benefit of working with both a vector space structure and a topological structure created by the norms. Traditionally, undergraduate analysis courses have examined only finite dimensional vector spaces. From an analysis perspective, all finite dimensional spaces behave in the same way, and there are many nuances involved in the generalization to infinite dimensional metric spaces. The leap from finite to infinite dimensional normed spaces provides a natural setting for student-driven generalization to occur. In this preliminary presentation I report on student generalization of particular norms from a finite to infinite dimensional setting. I will explore nuances of students' initial generalizations and will discuss further directions that this research could go. (Received September 21, 2016)