

1035-U1-1917 **Christine Joy Larson*** (larson.christy@gmail.com), 5545 Morro Way #K1, La Mesa, CA 91942, and **Michael Smith**. *Students' Conceptions of Vectors, Span, and Linear Dependence and Independence*.

Linear algebra is considered by many to be a transitional course in which students experience a shift away from a problem-solving emphasis (such as that which is common in many first- and second- semester calculus courses) toward an emphasis that is based more on formal reasoning and proof. The difficulties students encounter in making this transition have been well documented (e.g. Hillel, 2000; Carlson, 1993; Sierpiska, 2000). In order to better understand students' cognitive difficulties in coming to understand the central ideas of linear algebra, we conducted a series of semi-structured individual interviews aimed at eliciting students' thinking with and about the notions of vectors, span, and linear dependence and independence. Eight students in an introductory linear algebra course at a public university in the Southwestern United States were interviewed. In this talk, we will offer a characterization of the variety of ways in which students conceptualized these ideas and discuss potential implications on the learning and teaching of linear algebra. (Received September 20, 2007)