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Official Title: Talk STEM Familia: A Language Acquisition Smart Speaker-Based App to Improve English Language Acquisition And Family Engagement and Promote Long-Term Educational and Health Outcomes Among First- and Second-Generation Latino Families

Principal Investigators: Jessie Marquez, Patricia Vadasy, Ph.D.

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Study Protocol

We conducted a 6-week intervention among 50 dyads (4th/ 5th grade Latino English learners and their parent) to assess feasibility of *TSF* in terms of its usefulness, ease-of-use, cultural appropriateness, and potential for efficacy. The test used a within-subjects pre-post design to detect changes in student and parent word knowledge, self-efficacy, and behavioral intention. We also collected a post-test evaluation of consumer satisfaction and student and parent recommendations for program modifications.

Statistical Analysis Plan

The evaluation had three main goals: (a) determine whether statistically significant effects were found between T1 (pretest) and T2 (posttest) on the outcome measures; (b) determine the program effect sizes; and (c) determine the parent's and student's reaction to the program and amount of program use. An intent-to-treat analysis using one fully-imputed dataset and paired t-tests were used to determine whether or not there were significant increases in the outcome measures from pretest to posttest. The point-biserial r is provided as a measure of effect sizes with the convention .14 small, .36 medium, and .51 large (Rosenthal & Rosnow, 2008). Examination of descriptive statistics for the user satisfaction items informed on parent's and student's reaction to the program.

Power Analysis

Based on the pre-post within-subject design with 50 student-parent dyads, accounting for 10% attrition, and a two-tailed alpha set to .05, the study would have sufficient statistical power ($> .80$) to detect a medium or larger effect size (Cohen's $d = .41$) for change in the proposed outcomes. We believe that these differences are not so small as to be meaningless to participants, but not so large as to represent unrealistic expectations of changes brought about by the intervention. For ancillary analyses involving correlations the study is powered to detect medium or larger effects ($r = .38$).