Promoting Science Among English Language Learners (P-SELL) Scale-Up

The Promoting Science Among English Language Learners (P-SELL) Scale-Up project, funded by the National Science Foundation (2011-2015), developed a stand-alone, year-long, fifth grade science curricular and professional development intervention. It is aimed at improving science achievement of all students with a focus on English language learners (ELLs) in the context of high-stakes assessment and accountability policy in science. P-SELL highlights three areas: state science standards, hands-on science inquiry, and language development for all students and ELLs in particular.

P-SELL implementation involves three components. First, teachers receive science curriculum materials, including consumable student books, a teachers’ guide, science supplies, and online supplements. Second, teachers engage in professional development workshops during the summer and throughout the school year. Third, teachers are provided support at school sites by a P-SELL District Coordinator in each district.

To investigate the effectiveness of the P-SELL intervention, a randomized controlled trial was conducted. The study involved 33 treatment schools implementing P-SELL and 33 control schools across three school districts that were demographically diverse across the state of Florida. All fifth grade science teachers and students in these 66 schools participated in the study for a total of approximately 270 teachers and 7000 students each year.

The results of the first year of implementation (2012-2013) indicate that P-SELL is effective. First, P-SELL had a positive impact on students’ science achievement as measured by both the researcher-developed test and FCAT Science. The impact was positive across demographic groups, including ELLs. Second, P-SELL had a positive impact on teachers’ science content knowledge and instructional practices to promote students’ science learning and language development. Third, P-SELL had a positive impact on teachers’ perceptions of school resources (material, human, and social). Finally, P-SELL had a positive impact on teachers’ perceptions of FCAT Science, which indicates that a high quality intervention with positive student and teacher outcomes can also ameliorate teachers’ negative perceptions of accountability policy.

To date, P-SELL is the largest study to successfully demonstrate via an experimental design that inquiry-based, language-focused instruction can promote science achievement of all students and ELLs in particular in the context of high-stakes assessment and accountability policy in science. In addition, through effective professional development, elementary teachers can gain science content knowledge and improve their instructional practices. Based on these positive results, P-SELL offers a conceptual framework for the integration of science and language for all students, ELLs and non-ELLs.

P-SELL will complete its third year of implementation in the spring of 2015. Final results of the three-year study will be available soon after.