The Impact of the Frog Street Pre-K Curriculum on 2021-22 Pre-K Gains in Texas

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Research Brief

This study examined the impact of the Frog Street Pre-K curriculum on pre-K score gains across Texas, as measured by the CIRCLE assessment. Frog Street provides a bilingual pre-K curriculum organized into five domains and five skill-content areas, along with supports for social-emotional development. A revised version of the Pre-K curriculum was released in 2020 and is the focus of the current study. The purpose of the present study was to examine Frog Street Pre-K curriculum efficacy by comparing learning outcomes for pre-K students in schools with access to Frog Street in Texas during the 2021-22 school to outcomes for pre-K students in Texas schools without access to Frog Street.

Methods

Hierarchical Linear Modeling (HLM) analyses were conducted to examine the relationship between Frog Street curriculum usage by students and pre-K readiness gains. Dependent variables (outcomes) were individual students' spring 2022 CIRCLE scores. Independent variables included Frog Street usage (at the district level) and individual students' fall 2021 CIRCLE scores. We conducted analyses on all students who had non-missing fall 2021 and spring 2022 CIRCLE scores. The CIRCLE Progress Monitoring System is a technology-driven tool to capture the growth in pre-K children's (aged 3 and 4 years old) skills throughout the pre-K timeframe. The CIRCLE assessment has been standardized, is criterion-referenced, and relates well to established standardized tests. Propensity-score weighting (PSW) was used to adjust for baseline differences between treatment and comparison students that, while not exceeding WWC guidelines of 0.25 standard deviations, were large enough to potentially impact statistical analyses. Analyses were conducted by CIRCLE subject and language, resulting in a total of 10 analyses (5 subjects x English/Spanish versions).

Results

Results of these analyses are summarized in Figure 1. Usage of the Frog Street curriculum was generally associated with directionally positive gains, as eight of the 10 analyses showed positive effect sizes associated with usage of the Frog Street curriculum. Impacts were most noticeable on the Reading assessments, as Frog Street curriculum impacts were significant and positive for Spanish-language students (p = .009), and approached significance for English-language students (p = .098; see Table 1). In these analyses, the effect size can be interpreted as the CIRCLE score increase (in standard deviations) associated with Frog Street curriculum usage, in relation to comparison students who did not use Frog Street. For example, Frog Street students scored more than 0.2 SDs higher on the Spanish-language reading assessment than did comparison students. Similarly, Frog Street students scored .06 SDs higher on the English-language reading assessment than did comparison students.

The results of these analyses overall show evidence of small, but meaningful, practical impacts of the Frog Street curriculum in the 2021-22 school year. In interpreting the results of these analyses, it is important to note that no student demographic data outside of school and district information were available for these analyses. Additionally, no data were available regarding either fidelity of Frog Street curriculum implementation or the curricula to which comparison students were exposed. The lack of these data potentially attenuated impact estimates related to the Frog Street curriculum, as well as restricted interpretations of Frog Street's impacts in different contexts and for different types of students. Future research would ideally incorporate richer demographic data (i.e., student race/ethnicity, low-socioeconomic status, EL status, etc.) and program implementation and/or usage data, which would allow for more powerful statistical models yielding more precise impact estimates. Even with these data limitations, the results of the present study show promising suggestive evidence regarding the efficacy of the Frog Street curriculum.

Figure 1
Summary of Frog Street Effect Sizes Across Subject Tests

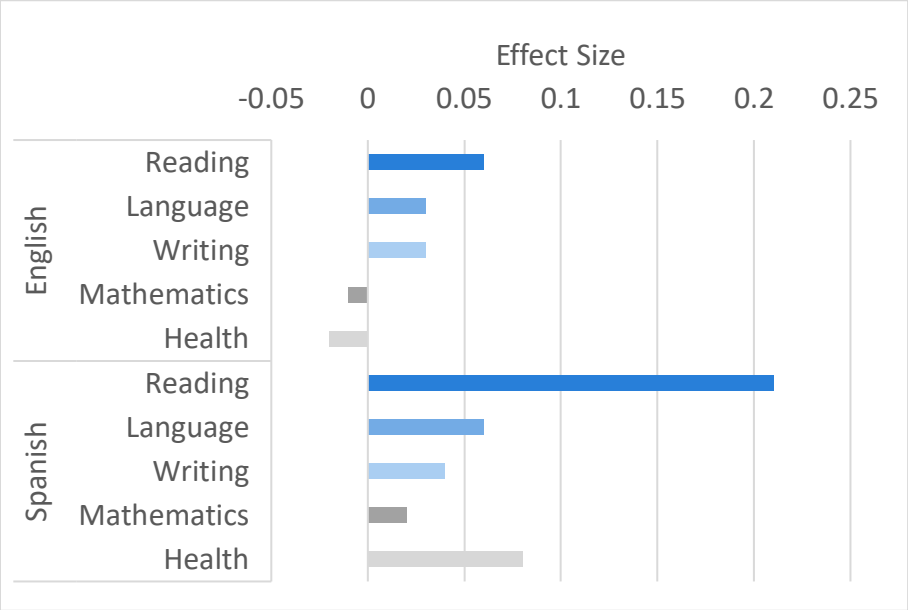

Table 1
Association between Frog Street and Reading learning gains, by language

Outcome	Estimate	Standard error	*p* value	*ES*
English Language	0.861	0.521	.098^	.06
Spanish Language	3.163	1.203	.009**	.21

Notes. 1. English: *N* = 56,130, j = 1,623 schools k = 345 districts; Spanish: *N* = 20,694, j = 789 schools k = 103 districts. 2. *OR* = odds ratio. 3. ** p < .01; ^ p < .10