

Sustainability | Individual communication

IC - (20965) - SCHOOL GREENSPACE AUGMENTS THE EFFECTS OF ACADEMIC INTERVENTIONS ON ANNUAL READING IMPROVEMENT FOR LOW- INCOME ELEMENTARY STUDENTS OF COLOR

Rouzbeh Rahai¹; Nancy Wells¹; Gary Evans¹

1 - Cornell University

Background and objectives

Evidence demonstrating nature's restorative benefits on attention and cognition among children suggests potential for green spaces to cultivate greater learning outcomes during school-based instruction. In this study, we pursue two primary research questions. **Research Question 1:** Does school greenspace accentuate the positive effects of literacy intervention sessions on student academic improvement conducted by a literacy intervention program operating in multiple urban contexts? **Research Question 2:** Do school greenspace measures demonstrate a positive relationship with student academic improvement?

Process and methods (for empirical research)

Students in California were sampled from a state-wide, literacy improvement program operating in Title 1 schools. Our dependent variable is one-year improvement outcomes on a reading benchmark test. We estimated student's experience of nature in their school environments as represented by green cover area on school property (based on 1m by 1m land classification). We examined **RQ 1** by investigating whether there was a Greenspace (IV 1) by Program Attendance (IV 2) interaction effect on student academic improvement. We examined **RQ 2** by investigating whether Greenspace (IV 1) demonstrated a main effect on student academic improvement.

Main results (or main arguments in the case of critical reviews)

Elementary school settings (N=85) with greater greenspace areas augmented the salutary effects of a reading enrichment program on annual academic improvement ($F=9.74$ $B=.018$, $SE=.006$, $p=.002$) for low income, individual students (k-6th grade, N=6080) of color attending a school-based literacy program throughout California. Multi-level modeling incorporated extensive individual, school, and community level covariates. A granular analysis demonstrated that trees, shrubs, herbaceous, and grass cover each enhanced the effect of academic instruction on annual reading improvement. However, no main effect of greenspace cover on academic improvement was found.

Implications for research and practice/policy | Importance and originality of the contribution

This study finds that greenspace in schools augments the effect of academic instruction on learning outcomes in reading. Moreover, this research highlights how nature can help bolster academic outcomes in youth who need the most support.