

# Rurality and Reading Readiness: The Mediating Role of Parent Engagement

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## INTRODUCTION

- Reading skills are critical to academic success (Adams, 1990) and effects of poor reading are compounded over time (Stanovich, 1986).
- Early family language and literacy engagement is important for reading development (Sénéchal & LeFevre, 2002; Sheridan et al., 2011) and has longitudinal effects (Roberts, Jurgens, & Burchinal, 2005).
- Despite recent improvements, rural students demonstrate lower achievement levels than nonrural peers (Beaulieu, Israel, & Wimberley, 2003; Killian & Beaulieu, 1995)
- Little is known about the effects of rurality on parents' early language and literacy engagement and children's reading readiness.
- Conditions in rural areas may differentially impact parent engagement and its impact on reading readiness.
  - Diminished resources and income potential may negatively impact parent engagement, and in turn, children's skill development.
  - Conversely, parents may provide more experiences in the home to make up for limited resources; thus, parent engagement may have a greater impact in rural settings.

## Purpose of Study

This study examined the effect of setting on parents' literacy engagement and children's early literacy, and whether parent engagement mediates the pathway between setting and child outcomes.

## Research questions

- What is the relationship between setting (city, suburban, town, rural) and children's Kindergarten literacy?
- What is the relationship between setting and parents' preschool literacy engagement?
- Does parent literacy engagement during preschool mediate the relationship between setting and children's Kindergarten literacy (see figure 1.)?

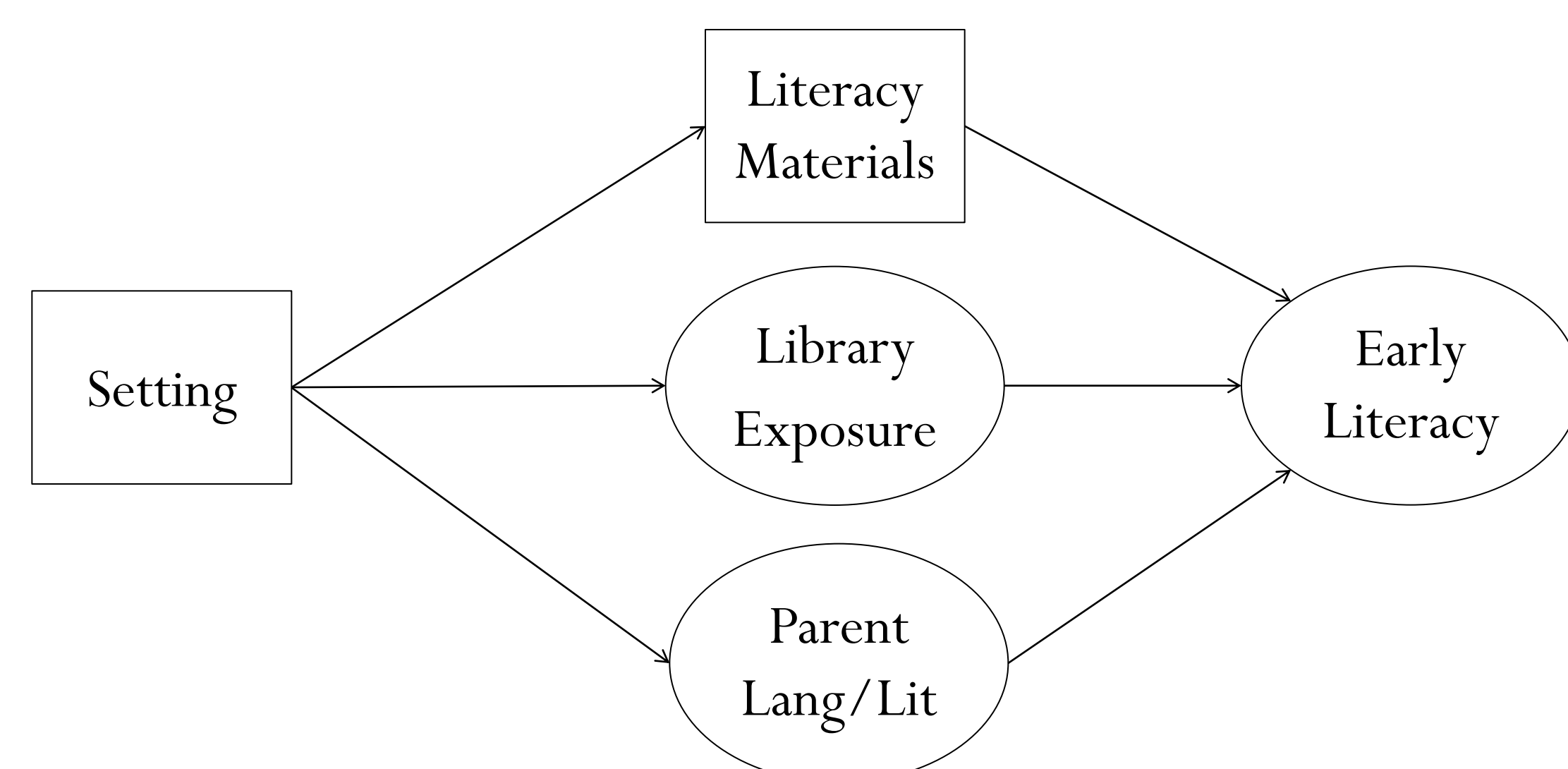


Figure 1. Mediation model. Covariate effects not pictured.

## METHODS

### Participants

Secondary analysis of the ECLS-B national database, preschool and kindergarten waves ( $n = 6550$ ).

- Sponsored by the National Center for Education Statistics (NCES), U.S. Department of Education and followed a nationally representative sample born in U.S. in 2001.
- Examined systemic interactions of child, family, childcare, health care, educational system, and community on children's overall health, social-emotional development, and intellectual capacity affecting school readiness.

### Measures

**Household setting.** Parent-reported household ZIP codes combined with American Community Survey data to create composite location variable (Snow et al., 2009) collapsed into four groups: city ( $n = 1950$ ), suburban ( $n = 2550$ ), town ( $n = 850$ ), and rural ( $n = 1100$ ).

**Home literacy materials.** One-item parent-report measure regarding number of books in home.

**Child's exposure to the library.** Four dichotomous parent-report questions summed to create composite library exposure score.

**Parent language and literacy behaviors.** Three parent-report item ratings summed with higher score indicating more behaviors (reading, singing, and/or telling stories with child).

**Children's early literacy.** Directly assessed using items from the *PreLAS 2000* (Duncan & De Avila, 1998), *PPVT-III* (Dunn & Dunn, 1997), *Pre-CTOPPP* (Lonigan, Wagner, Torgesen, & Rashotte, 2002) and *ECLS-K* items (Najarian et al., 2010).

**Child and family covariates.** Three child (race/ethnicity, age at kindergarten assessment, and sex) and one family (SES; Snow et al., 2009) variable.

### Analyses

Structural equation modeling (SEM); analyzed in *Mplus* Version 6.1 (Muthén & Muthén, 1998-2010) using full-information maximum likelihood estimation to account for item-level missing data.

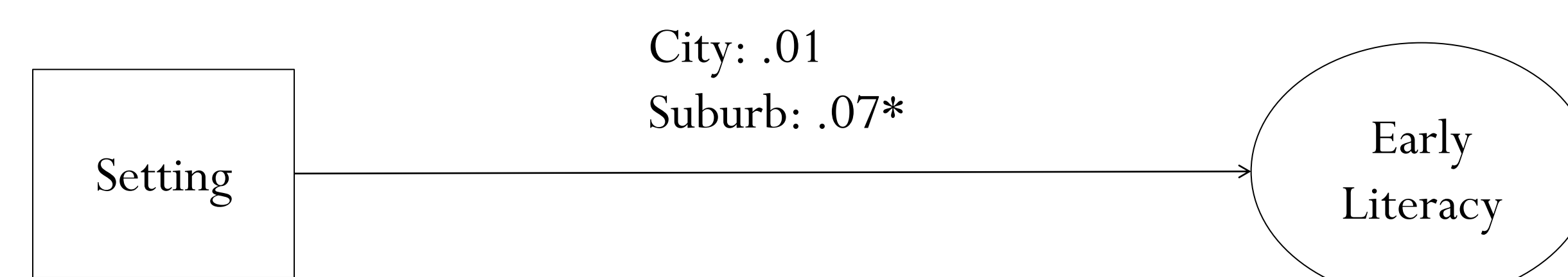


Figure 2. Total effect of setting on early literacy. Path coefficients are standardized. Covariate effects and effects involving town are not pictured. Rural is the reference group for setting.  $*p < .05$ .

## RESULTS

- Significant overall effect of setting on library exposure,  $-2\log(\Lambda)$  [ $df = 3$ ] = 40.978,  $p < 0.001$  with city and suburban exposed more than rural children ( $\beta = 0.105$ ,  $p < 0.001$  and  $\beta = 0.102$ ,  $p < 0.001$ , respectively).
- Significant effect of setting on reading scores ( $-2\log(\Lambda)$  [ $df = 3$ ] = 29.826,  $p < 0.001$ ), with suburban scoring higher than rural children ( $\beta = 0.072$ ,  $p = 0.013$ ).
- Small, marginally significant indirect effect of setting, city versus rural, on reading scores through pre-Kindergarten library exposure,  $\beta = 0.004$ ,  $p = 0.051$ .
- Small, significant indirect effect of setting, suburban versus rural, on reading score through pre-Kindergarten exposure to the library,  $\beta = 0.004$ ,  $p = 0.036$ .

Table 1.  
*Weighted Descriptive Statistics<sup>a</sup> by Household Setting*

Study Variable	City	Suburban	Town	Rural
Child Sex				
Male	51.8%	51.1%	52.4%	50.5%
Female	48.2%	48.9%	47.6%	49.5%
Child Race/Ethnicity				
White	38.5%	51.7%	61.4%	78.2%
Black	20.5%	13.0%	9.1%	8.2%
Hispanic	33.5%	28.8%	21.6%	6.5%
Asian	3.2%	3.5%	0.8%	0.4%
American Indian or Alaska Native	0.3%	0.2%	1.3%	1.2%
More than 1 race	4.0%	2.9%	5.7%	5.5%
Child age in months <sup>a</sup>	68.136 (4.365)	68.123 (4.387)	68.086 (4.419)	68.354 (4.646)
Family SES <sup>b</sup>	-0.220 (0.838)	0.075 (0.783)	-0.221 (0.771)	-0.149 (0.706)
Number of children's books <sup>b</sup>	58.611 (76.292)	71.724 (81.462)	70.344 (88.832)	81.021 (91.977)
Child library exposure <sup>b</sup>	1.060 (1.434)	1.147 (1.466)	0.951 (1.406)	0.836 (1.308)
Parent lang/lit behaviors <sup>b</sup>	-0.021 (0.541)	0.009 (0.527)	-0.015 (0.522)	0.034 (0.557)
Child reading score <sup>a</sup>	0.544 (0.809)	0.743 (0.760)	0.561 (0.744)	0.588 (0.738)

Note. <sup>a</sup>Percentages for categorical variables and means (SD) for continuous variables. <sup>b</sup>Statistics are based on KindergartenWave data. <sup>c</sup>Statistics are based on Wave 3 data. Percentages may not sum to 100 due to rounding error. Estimates were weighted using the WRR0 longitudinal weight. Standard errors were computed using a paired jackknife replication method.

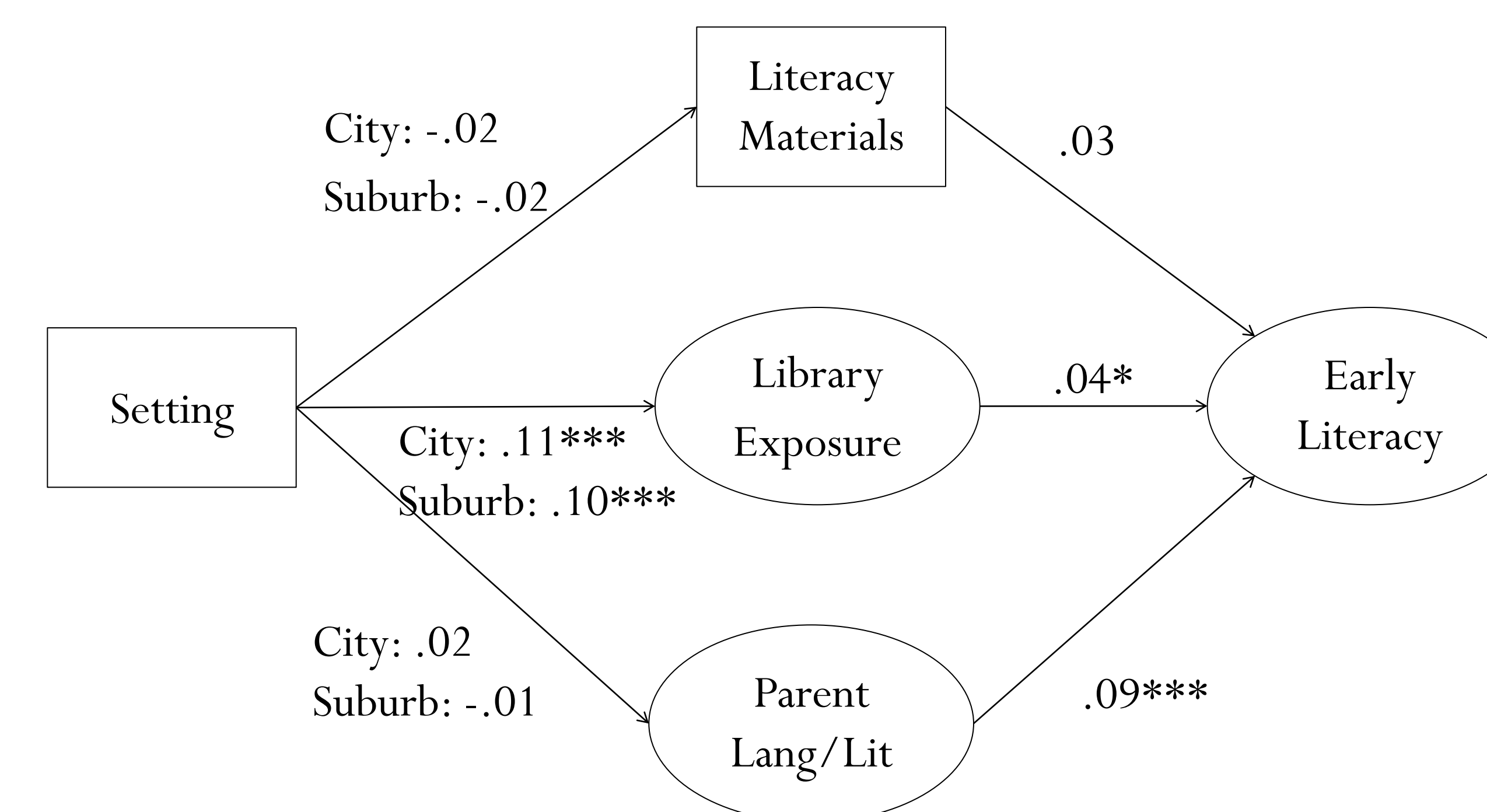


Figure 3. Partial results for the mediation model. Path coefficients are standardized. Covariate effects and effects involving town are not pictured. Rural is the reference group for setting.  $***p < .001$ ,  $*p < .05$ .

## DISCUSSION

- Living in a rural community influences parents' access to resources (i.e., libraries), which affects children's literacy, but it does not influence home literacy materials and parent language/literacy behaviors.
- Libraries may be limited in rural communities due to financial resources, population density, and proximity to metropolitan areas, but other resources may be available (book mobiles, computers, e-readers) that could be used to support early literacy skills.
- Differences in parent behaviors and home literacy materials are not due to the influence of rural settings, but family demographic characteristics (i.e., SES and race/ethnicity).
- Differences in Kindergarten literacy still exist between suburban and rural children even after accounting for differences in parent literacy engagement.
  - Suggests presence of additional mediating variables for which suburban children are advantaged.
- No overall differences in Kindergarten literacy between city and rural children despite city children's greater exposure to the library.
  - Suggests presence of additional mediating variables for which rural children are advantaged.

## Limitations

- Inferences made from this study are limited to children born in the U.S. in 2001.
- Only a select number of parent engagement variables were included in this study and results indicate more mediating variables need to be investigated.
- Data used for this analysis were based on self-report rather than observational data, due to sample size limitations with observational measures collected for the ECLS-B study.

## Future Research

- Understanding and identifying effective ways to support parent language and literacy engagement in rural communities is important to supporting early literacy and bridging learning gaps.
- Distinctive features of rural contexts need to be examined to identify important mediating factors that can be manipulated to promote optimal learning outcomes for children in rural communities.

This research is supported by a grant awarded to Drs. Susan Sheridan and colleagues (IES #R305C090022) by the Institute of Education Sciences. The opinions expressed herein are those of the authors and should not be considered reflective of the funding agency.