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Early Childhood Education and Socioeconomically Disadvantaged Children: A Meta-Analytic Review



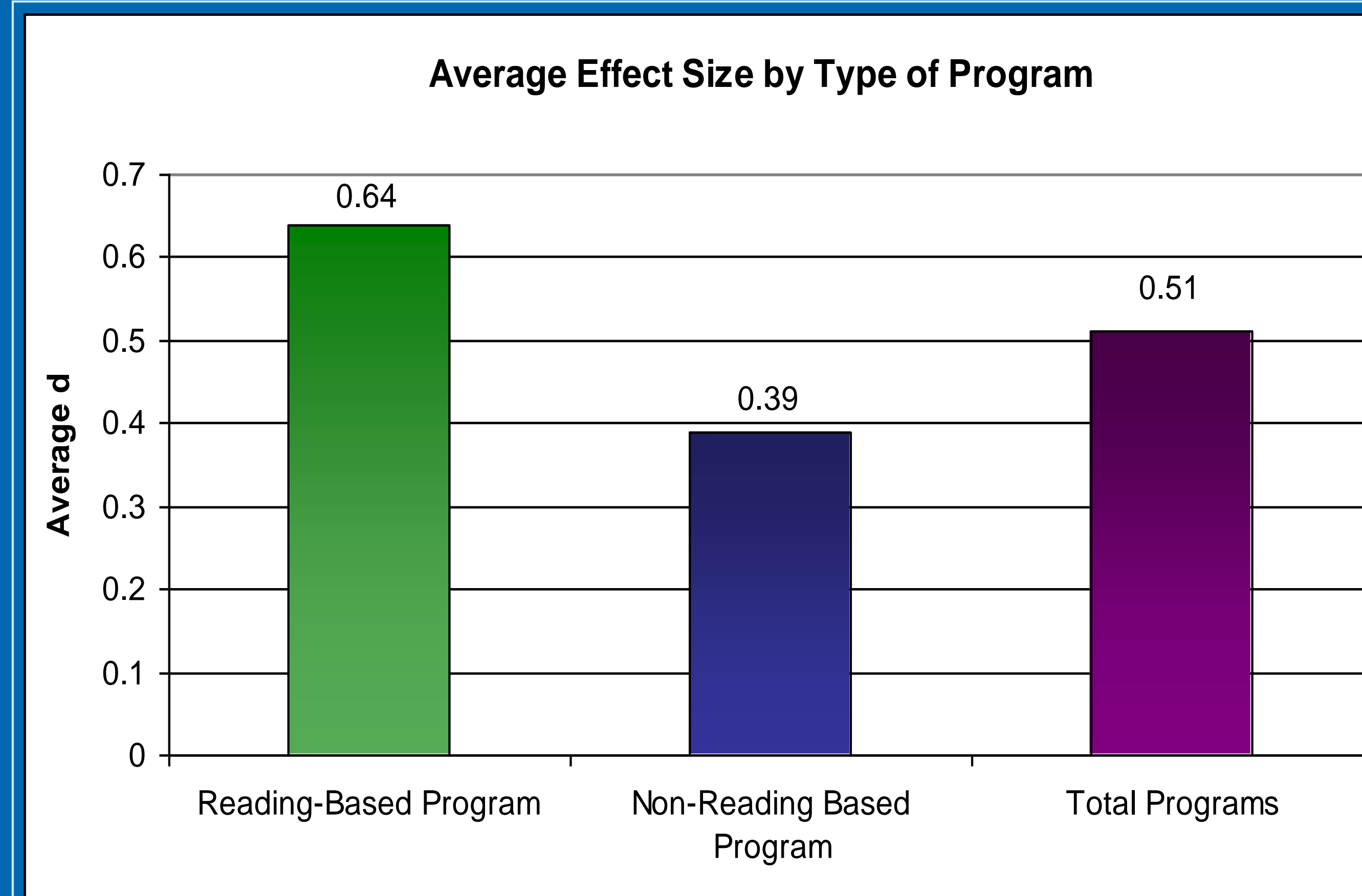
Elisa Garcia '08 and Dr. Linda Smolak

Introduction

- Language is an area of particular developmental discrepancy in low Socioeconomic Status (SES) children (Noble 2005; Farah 2006)
- Language development is further depressed by serious health problems (Landry et al. 2002)
- Some preschool and early intervention programs have experienced extremely positive long-term results
 - Perry Preschool Project
 - Carolina Abecedarian Program
 - Chicago Child-Parent Center
 - Head Start
- Previous research has not specifically investigated the effects of early intervention on language development. The purpose of this analysis was to see if such areas can be significantly impacted by early education.

Method

- Articles were located using the online journal databases, OhioLink Electronic Journal Center, and PsycInfo
- Search terms : low SES, language development, early childhood intervention, early childhood education
- 53 articles were initially reviewed
- Twelve studies were used in the final analysis:
 - Included a low SES intervention and control group
 - Subjects were between two and five years at time of intervention
 - Included a center-based component
 - There was a language-based outcome measure
 - There were usable statistics (*F* values, *r* values, *t* scores, *d* effect sizes) for relevant outcome measures
- Effect sizes were calculated as *d* values. A *d* indicates the difference in means between two groups. Significance of *d* was tested using a *z* score, and a *Q* statistic tested for homogeneity of the sample.



Results

Main Analysis:

- 3431 intervention children
- 2665 control children
- Overall effect size: $d = 0.51, z = 9.42, p < .000001$
- $X^2(11) = 49.05, p < .01$; indicating heterogeneity

Sub Analysis:

- Dialogic/interactive reading interventions:
 - Overall effect size: $d = 0.64, z = 6.53, p < .000001$
 - Homogeneous sample: $X^2(5) = 4.49, p > .05$.
- Non-reading based interventions:
 - Overall effect size: $d = 0.39, z = 7.83, p < .000001$
 - Heterogeneous sample: $X^2(5) = 29.61, p < .01$.
- African American children:
 - Overall effect size: $d = 0.52, z = 9.01, p < .000001$.
 - Heterogeneous sample: $X^2(5) = 17.07, p < .01$
- Children of Other Ethnic Identities:
 - Overall Effect Size: $d = 0.50, z = 5.16, p < .000001$.
 - Homogeneous Sample: $X^2(5) = 13.08, p > .05$.

Discussion

- The purpose of this research was to determine if early intervention and preschool programs can impact the language development of low SES children
- Our main hypothesis was supported with a medium-sized, highly significant effect size
- Our sample was quite heterogeneous, thus sub analyses were conducted on reading vs. non reading interventions and on the racial identity of program children
- The sub analysis on reading vs. non-reading based interventions suggests that dialogic or interactive reading techniques may be particularly helpful
- Previous research has suggested that African American children may experience the greatest benefit from early intervention; our analysis did not support this idea
- A limitation of this analysis was that we did not exclude studies based on methodological quality
- Future research could examine the specific linguistic mechanisms affected by early intervention

References

- Farah et al. (2006). Childhood poverty: Specific associations with neurocognitive development. *Brain Research*, 166-174
- Landry, S.H. et al. (2002). Environmental effects on language development in normal and high-risk child populations. *Seminars in Pediatric Neurology*, 9, 3, 192-200.
- Nelson, G.; Westheus, A. & MacLeod, J. (2003). A Meta-analysis of longitudinal research on preschool prevention programs for children. *Prevention and Treatment*, 6 (December).

