Title:
From Efficacy to Mechanism: Rethinking Child Language Intervention within Developmental Systems

Abstract:
For more than three decades, child language intervention research has established effective strategies, documented fidelity, and demonstrated impact through rigorous trials. This work built the field. Yet persistent findings remain: moderate average effects, wide heterogeneity in child outcomes, weak associations between traditional dose metrics and developmental change, and ongoing need for adaptation across contexts and populations. These patterns are not failures of intervention; they signal limits in our models of how developmental change occurs.

Caregiver-mediated naturalistic developmental behavioral interventions (CI-NDBIs) provide a useful example for rethinking mechanism. These interventions do not operate as discrete treatments delivered to a child. They function within nested developmental systems—caregiver–child dyads embedded in classrooms, families, and cultural communities. Their active ingredients are contingent, distributed, and temporally dynamic. Children shape caregiver behavior; caregivers reorganize interaction patterns; contextual conditions enable or constrain engagement. Change emerges from transactions across time.

This presentation proposes a next-generation framework integrating three interlocking layers within a developmental systems model: adaptation science (specifying core and flexible components), behavior-contingent dosage (measuring functional timing and alignment rather than minutes delivered), and relational state (conceptualizing regulation, engagement, and cultural fit as enabling system conditions).

Reframing intervention as the structured reorganization of transactional processes advances the field from efficacy testing to mechanism modeling—toward interventions that are developmentally precise, context-responsive, and sustainable over time.