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Introduction to the Special Issue on Naturalistic Developmental Behavioral Interventions

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Naturalistic Developmental Behavioral Interventions (NDBIs) are a newer class of interventions that represent a purposeful integration of developmental science principles and naturalistic teaching strategies from applied behavior analysis (ABA; Schreibman et al., 2015). There are a number of different manualized NDBIs; however, they all share the following features: (a) implementation in natural settings and daily routines, (b) the presentation of learning opportunities that follow the child's lead or interests, (c) the use of natural reward contingencies, (d) the application of behavioral strategies to teach developmentally appropriate and prerequisite skills, and (e) an emphasis on the child's social engagement within the learning context (Schreibman et al., 2015).

NDBIs are now considered best practice in treatment of infants and toddlers on the autism spectrum (Sandbank et al., 2020, 2023; Tiede & Walton, 2019; Zwaigenbaum et al., 2015) and represent a growing proportion of high-quality early intervention research for young autistic children (Sandbank et al., 2023). In addition, these interventions have been adapted to serve children with social communication delays more broadly, including children at high likelihood of autism (having an older autistic sibling or showing early signs) and children with developmental delays without autism. They are also increasingly being used in multiple settings (e.g., home, school) across various intervention implementers (e.g., early intervention providers, teachers, speech language pathologists, caregivers) with a focus on successful use of these strategies in community programs (e.g., Pellecchia et al., 2023; Stahmer et al., 2020, 2023; Suhrheinrich et al., 2019). However, the field has called for additional research examining specific aspects and applications of NDBIs (Sandbank et al., 2020, 2023).

We are very excited to present this special issue of the *Journal of Early Intervention*, which brings together current scholarship on NDBIs. Articles in this issue represent several different NDBIs and utilize a wide range of methodologies to address important issues for advancing the evidence base for NDBIs as well as their dissemination and implementation in community settings.

The issue begins with a commentary by Ingersoll and colleagues (2024) which provides both an overview of NDBIs generally and recommendations for ensuring a strong workforce with appropriate training and competencies to implement NDBIs effectively in community settings. This review of NDBI competencies for community providers highlights the need for a greater understanding of NDBIs' active ingredients, adaptations needed for community implementation, and strategies for workforce development.

The first set of empirical studies involves different methodological approaches to testing the efficacy and effectiveness of NDBIs. Frost and Ingersoll (2024) used qualitative interviews with experts, providers, and parents to develop a comprehensive theory of change of Project ImPACT (Improving Parents As Communication Teachers) and quantitatively tested several identified pathways with archival data. Edmunds et al. (2024) used a randomized controlled efficacy trial to show that parent fidelity in vocal responsiveness mediates the effect of Project ImPACT on vocal complexity in toddlers at higher likelihood of developing autism. Both studies provide insight into potential active ingredients of the Project ImPACT program. Pellecchia

and colleagues (2024) conducted a pilot effectiveness trial of Project ImPACT in partnership with the early intervention system of a large urban city that serves families from predominantly marginalized and under-resourced backgrounds in preparation for a large-scale, fully powered randomized type 2 hybrid effectiveness-implementation trial. This highlights important methodological considerations regarding recruitment, retention, data collection, and provider support strategies that are necessary for conducting a successful effectiveness-implementation trial of NDBIs in under-resourced community settings.

The second set of studies examines adaptations of existing NDBIs for use with new populations or in community-based settings. Pickarrd et al. (2024) used the Ecological Validity Model to evaluate program adaptations made by bilingual clinicians when delivering Project ImPACT with Spanish-speaking families. Jobin et al. (2024) used a quasi-experimental design to evaluate outcomes for autistic preschoolers enrolled in a community-based inclusive preschool program which utilized NDBI strategies adapted from Project ImPACT and Classroom-Based Pivotal Response Teaching (C-PRT). Rooks-Ellis and colleagues (2024) examined the effectiveness and implementation costs of an adapted version of caregiver-mediated Early Start Denver Model (ESDM) in a statewide implementation effort in rural, low-resourced state. These studies examine how NDBIs can be adaptable to different service systems, languages, and levels of resources.

The last set of studies focuses on important considerations for workforce development among community providers. Landa and colleagues (2024) explored methods for supporting the use of NDBIs during book reading activities for preschool teachers supporting a range of students. This study expands strategies for integration of NDBIs into a new workforce and expands the literature on the use of NDBIs with preschool students who have developmental differences as well benefits for students developing typically. D'Agostino et al. (2024) explored the use of NDBIs in preschools further by using mixed methods to learn how preschool teachers perceive the use of these strategies with students who have developmental differences. Together, these studies provide information on how to build workforce capacity in the community to support children with developmental differences.

We thank the authors for their excellent contributions. We hope that the articles in this special edition generate additional research and interest in NDBIs in the field of early intervention.

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