Increasing Literacy Behaviors through Environmental Modification and Teacher Mediated Intervention in Inclusive Preschool Settings

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Research Questions

What is the impact of environmental modification on literacy behaviors in an inclusive preschool setting?

What is the impact of a teacher mediated intervention on literacy behaviors in an inclusive preschool setting?

Teacher Mediated Literacy Intervention:

1) Invite the child to center
2) Model the use of the literacy material
3) Verbally encourage the child's use of the literacy material
4) Praising the child's engagement with the literacy materials

It was not necessary for the teacher to engage in each step in sequence in that order

Behavior Definitions

Literacy Behavior

- *Looking at a book* - a child's eyes are focused on some aspect of the book (could be closed).
- *Listening to a book* - a child is listening to a book being read by an adult, or on a device. The child must look at the book at some point during the reading.
- *Looking at letters or words in the environment* - a child looking at displays, signs, other children's or an adult's writing.
- *Writing with or without a template* - child writing (must resemble letter forms) independently, tracing letters, using stencils, and copying letters or words.
- *Manipulating a puzzle or game that includes words or letters* - child is touching and looking at the pieces of the puzzle or game and attempting to complete a task.
- *Looking at another person writing* - a child's eyes are looking in the direction of the paper or material on which the person (child or adult) is writing. Looking only at the person's face would not apply.
- *Not engaged* - when child not demonstrating any of the above categories.

Participants & Setting

- The participants in this study were three early childhood special education teachers, and nine children receiving early childhood special education services. Children ranged in age from 4 years 11 months to 5 years 10 months. All children had the educational classification of developmental delay and received related services within the early intervention environment.

- Three inclusive early childhood classrooms in a public suburban school system served as the setting for the present study. Each classroom served an average of 21 children (range, 20-22), with and average of 7 children (range, 7-8) in each classroom who had an Individualized Education Plan (IEP).

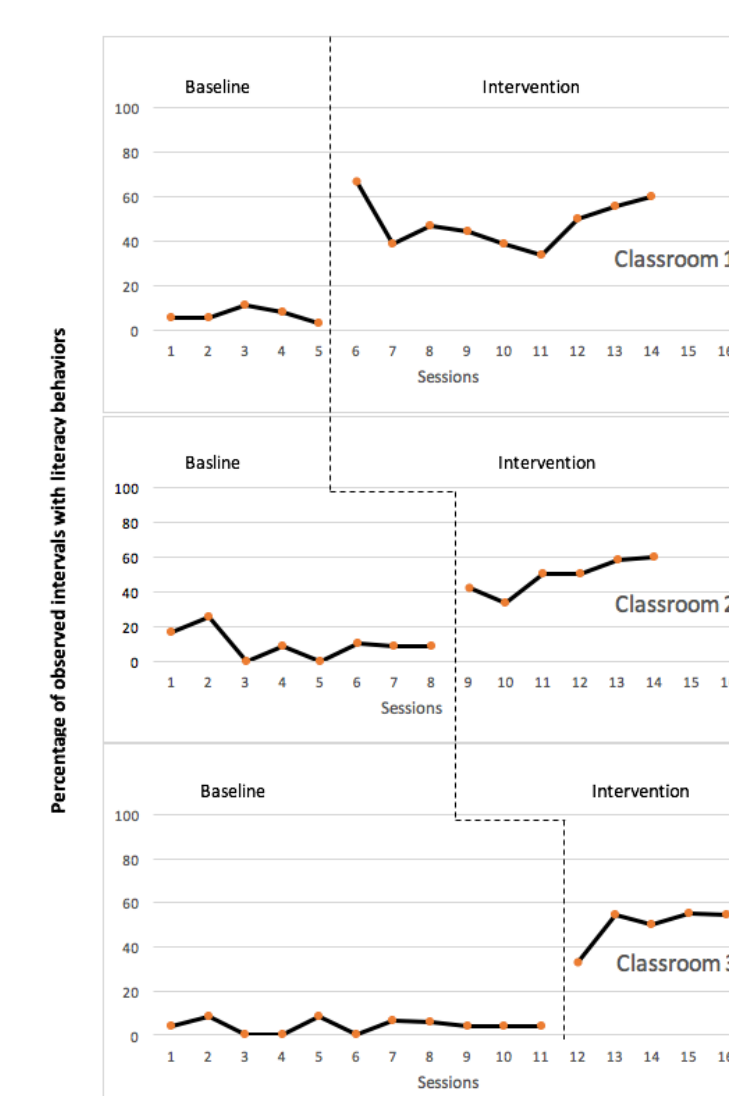## Procedures

Environmental Modification & Teacher Mediated Literacy Intervention

- Each classroom was evaluated using the Early Literacy and Language Classroom Observation Tool (ELLCO; Smith & Dickinson, 2007) to ensure that appropriate literacy materials were available in each classroom for the children to use during play.
- Teachers were trained on interaction strategies to facilitate children's use of literacy materials in the classroom. The intervention began with the teacher inviting the child to one of the targeted classroom centers, modeling the use of the literacy material, verbally encouraging the child's use of the literacy material, and praising the child's engagement with literacy materials.

Data Collection

- A momentary time sample was used to record child behavior in 5-minute increments across each 30-minute session.

Observation Procedures

- Data were collected each day during independent free choice for a period of 30-minutes. During this time, the teachers and paraprofessionals were engaged in a center with the children, and would be assisting children with other tasks.

Research Design

- A multiple baseline design was used to measure the engagement of literacy behaviors of children receiving special education services in an inclusive classroom.

Data

Table 1. Frequency of Literacy Behaviors

	Baseline	Environmental Modification & Teacher Mediation Intervention	
	m% (range)	m% (range)	% Change
Classroom 1			
Clarence	12 (0-25)	65 (33-80)	53
Justin	7 (0-17)	53 (17-100)	46
Ava	0 (0-0)	33 (0-80)	33
Classroom 2			
Curtis	7 (0-33)	57 (17-84)	50
Dexter	11 (0-33)	39 (17-60)	28
Classroom 3			
Silvi	0 (0-0)	58 (33-80)	58
Aquila	5 (0-17)	53 (33-67)	53
Raul	3 (0-33)	39 (17-60)	36
Leroy	8 (0-20)	47 (17-68)	39

Table 2. Child Demographics

Child	Age	Disability	Ethnicity
Clarence	4-11	Developmental Delay & Speech	African American
Justin	5-2	Developmental Delay	Caucasian
Ava	5-3	Developmental Delay	Caucasian
Curtis	5-1	Developmental Delay & Chiari	Caucasian
Dexter	5-10	Developmental Delay	African American
Silvi	5-1	Developmental Delay	Indian
Aquila	5-2	Developmental Delay	African American
Raul	5-5	Developmental Delay	Hispanic
Leroy	5-2	Developmental Delay	African American

Discussion

- This study led to an increase in literacy behaviors in preschool children by adding literacy props, along with teacher mediation. Literacy materials can be included in various centers in the classroom, such as the science area or manipulatives/blocks, to increase the chances for children to be engaged in literacy behaviors.
- The most frequently observed literacy behaviors among participants was looking at words across all classrooms. Due to several of the students receiving services for fine motor needs, there may be a greater resistance to manipulative activities. The least observed literacy behavior was looking at someone write. Modeled writing is more often observed in whole group activities or table time activities with a small group of children.
- Although fidelity checks were implemented to control for variability among the implementation of teacher mediation strategies, certain teacher qualities such as tone of voice, authenticity of praise and enthusiasm were not controlled for, and could have influenced the quality of interactions between the teacher and students in the classroom.

Future Research

- Individually determine the effect of environmental modification and teacher mediation on literacy behaviors.
- Examine long term benefits of literacy behaviors during play.
- Examine impact of intervention with categorical disabilities and/or children with more significant disabilities.